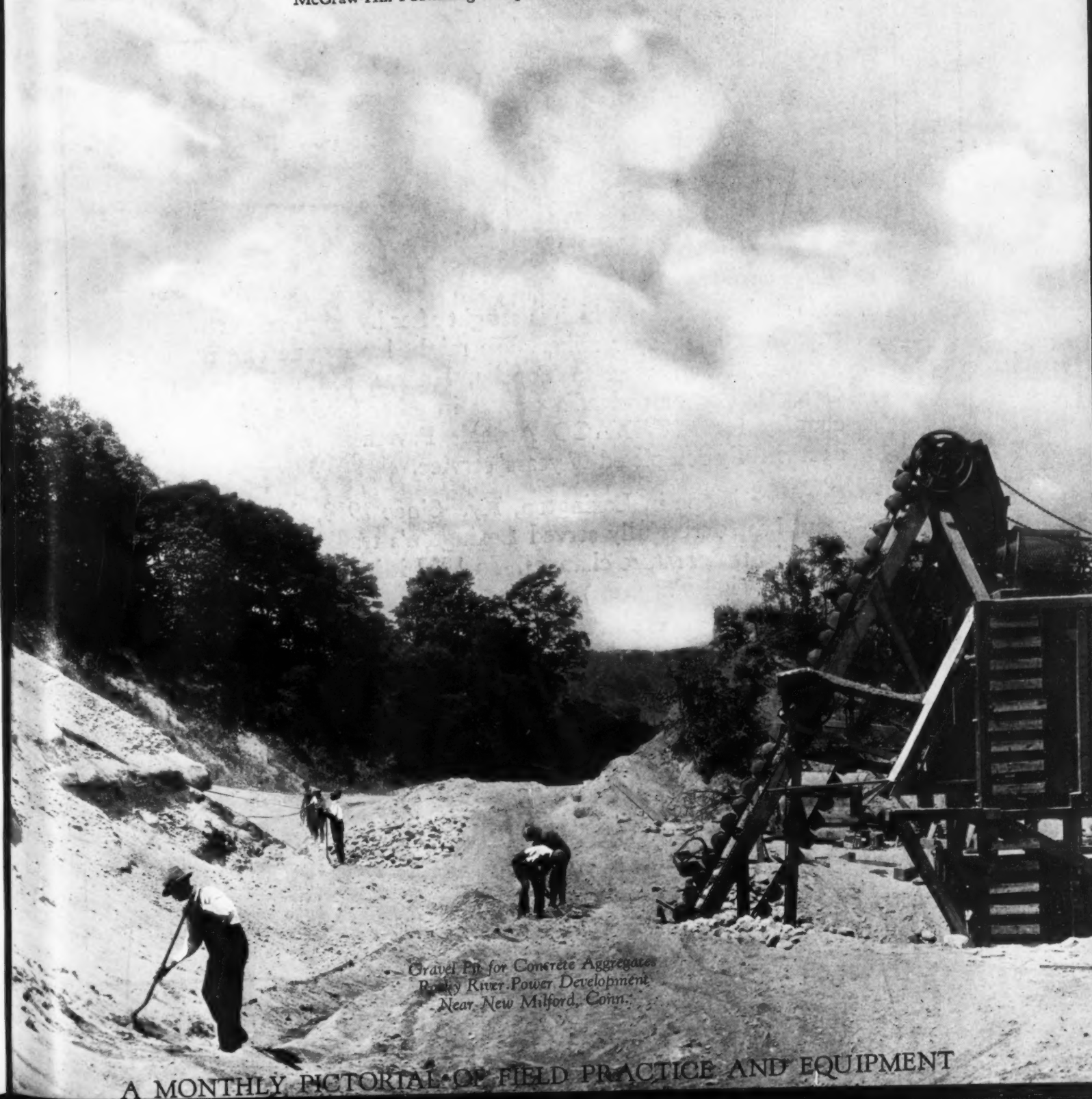


October
1927

Construction Methods

McGraw-Hill Publishing Company, Inc., New York, N. Y.



Gravel Pit for Concrete Aggregates
Rocky River Power Development
Near New Milford, Conn.

A MONTHLY PICTORIAL OF FIELD PRACTICE AND EQUIPMENT



S. Ashland Avenue, Lexington, Ky., paved with
TEXACO Sheet Asphalt in 1910.

After
17
years

It is such durability which is sought after by engineer, contractor and taxpayer alike. We might have gone east to Newark, N. J., west to Topeka, Kansas, south to New Orleans, La., or to leading cities in other sections of the country for a TEXACO Asphalt Pavement which has successfully completed 17 years' service.

But here is one in Lexington, Ky. Since 1910, this pavement has successfully served Lexington's traffic and withstood its temperature changes. In 1927 it is still as smooth and easy-riding as ever.

Lexington, Ky., is one more of the 1350 U. S. cities which have pavements of TEXACO Asphalt.

TEXACO

New York
Philadelphia
Richmond
Boston
Jacksonville



The Texas Company
ASPHALT SALES DEPT.
17 Battery Place, New York City



Chicago
Cleveland
Kansas City
Houston
Dallas

Construction Methods

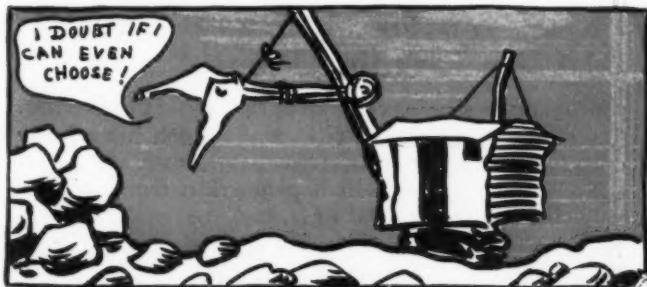
Hitting the High Spots

OUT in the boundless spaces of the Middle West the other day we overhauled an ancient Ford which was bounding merrily over the concrete with more than the ordinary amount of clatter. On it in letters big and bold were the words, "I do not choose to run in 1928." Of the meaning of the statement there was not the slightest doubt. In



fact, as we went past, the only question in our minds was whether or not the poor thing would get to the next gas station.

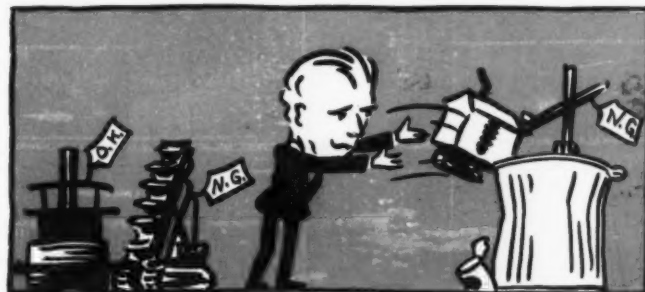
A FEW miles further on, we passed a pre-war steam shovel doing its best to fill a waiting line of motor trucks. Every joint creaked as the dipper lunged uncertainly back and forth. The old often are unable to speak clearly, but we were sure that the veteran shovel, like the faithful Ford, was turning the President's words to its own purposes.



IF ALL the machines in the great construction field could make themselves understood, how many of them would be found saying the same thing? Many of them are still going who have earned rest and quiet. They no longer can work efficiently, they have ceased to be a credit either to their makers or their owners. There is just one reason why they are still on the job—they cost a lot of money in the first place.

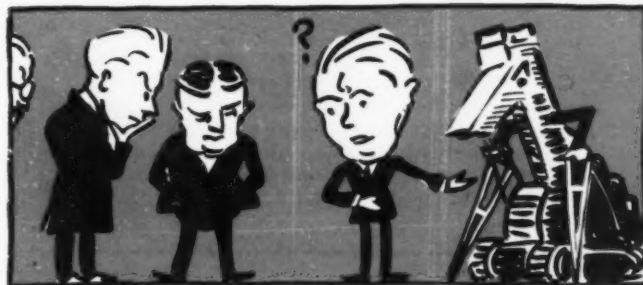
OF COURSE, they cost a lot of money if they were well made. Nobody denies that good construction machinery is expensive. But that is no reason why it should be kept at work beyond its time. A machine that is too old to work efficiently is infinitely more expensive than the highest priced new machine, as many a construction man has found to his cost.

SO THIS fall while you are winding up your 1927 jobs, listen to the voices of your old machines. And if you hear them protesting that



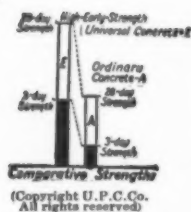
they do not choose to run in 1928, pay heed to what they say.

AND if you are not quite sure whether or not the old fellows really are through, ask the men who made them to help you decide. They know their machines inside and out. They also know that the best advertisement they can have is an old machine that is still going strong, so you needn't be afraid of being urged to buy a new one when it isn't really needed. And beyond that, the



manufacturers of construction machinery know that they can't make money unless you make money, so you will find them working with you every minute.

So weed out the veterans that have done their share. Keep your plant up to date.



Cold-weather concreting, always practicable, is made more feasible than ever by the use of *High-Early-Strength Universal Concrete* which shortens the period during which protection from freezing is required and makes possible the early removal of forms. For full details send in the accompanying coupon.

Name

Address

UNIVERSAL PORTLAND CEMENT CO.
210 South La Salle Street, Chicago

Without obligation, please send me detailed information on methods for securing strong concrete in 3 days with the usual materials.
SM 10-27

When time is money...
use **High-Early-Strength concrete**
made with standard (not special)
Universal Cement

Don't Let Winter Months Interfere With Building Plans

Now winter concreting is even more practicable than before.

High-Early-Strength Universal Concrete (which has a 3-day strength equal to the 28-day strength of ordinary concrete) shortens the period during which protection from freezing is necessary. It hastens removal of forms.

Having a greater *ultimate* strength in addition to a higher *early* strength, it also is *permanently* better and stronger concrete, as shown in the diagram.

Don't postpone your plans because they carry construction into winter! Take advantage of plentiful materials and good labor conditions during cold weather. Then in the spring, when other buildings are being started, your job will be completed or well under way.

For full details on *High-Early-Strength Universal Concrete*, made with the *usual* materials, *usual* labor, *usual* equipment and standard Universal cement, all applied according to fully tested methods, send in the accompanying coupon.

Universal Portland Cement Co.

Chicago Pittsburgh Minneapolis Duluth Cleveland Columbus New York
Concrete for Permanence

What a bargain this is!

What's \$1 compared to what you will receive in return? Certainly you're not going to let 3 cents a month delay you in returning the coupon below that will bring *Construction Methods* to you each and every month for 3 years.

There is absolutely no catch to this offer. One dollar pinned to the coupon below will bring *Construction Methods* to you each month for 3 years.

We know that it sounds almost too good to be true. But it's a fact just the same. The McGraw-Hill Publishing Company—the company that publishes *Engineering News-Record*, *Electrical World*, *Power*, *Coal Age*, *Engineering and Mining Journal* and 10 other publications stands back of this offer.

Don't Delay—Return the coupon with \$1—Today!

We will freely admit however that the low charter rate won't last much longer. It's just an introductory offer—and the fact that more than 18,500 construction men have taken advantage of it since April 1926 convinces us that the introductory period is nearly over. The price is going up—but you can still get your subscription in under the low charter rate by returning the coupon below—Now.

Fill in lines below, attach \$1, return in envelope



Among the 18,500 charter subscribers to *Construction Methods* are

General Contractors
Building Contractors
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Grading Contractors
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County Engineers
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Public Utility Engineers
County Officials
City Officials
Township Officials
Industrial Companies
Crushed Stone and Slag Producers
Cement, Lime and Gypsum Mills
Brick and Tile Plants
Sand and Gravel Pits
Paper Mills
Mechanical and Civil Engineers
Engineers and their superintendents
Construction Equipment Dealers

Construction Methods is useful to these different branches of the industry. Isn't it a good bet that it is to you also.

your Order—Now!

Don't Delay!

Construction Methods
McGraw-Hill Publishing Co., Inc.
Tenth Ave. at 36th St.,
New York, N. Y.

Send me *Construction Methods* every month for three years, thus making sure that I'll know how other construction men are using new methods to Save Time—Save Money—Speed Up Construction—Make Better Use of Equipment—and Overcome All Sorts of Obstacles and Problems. Start my subscription with the next issue, please. My dollar is attached.

IMPORTANT

If your accounting office system does not permit you to send cash with order, we will

**Yes, Sir! Here's my dollar!
Count me in!**

Name

Address

City..... State.....

Company Employed by
or Business Connection.....

Nature of Business..... Position.....



Higgins Was a Master Salesman—

One of those rare birds who didn't know there was such a word as "No" and so ingenious at devising new arguments that it was a pleasure to succumb to his blandishments.

One day, we were discussing *Construction Methods*—"Man alive," he enthused, "the man that can't sell that live pictorial paper doesn't deserve to be called a salesman. Just look at this."

From a side pocket he extracted three pennies. Holding this in the palm of one hand and the current issue of *Construction Methods* in the other, he said impressively:

"Is there a sensible contractor, construction engineer, superintendent or foreman who will weigh for a single instant the value of these 3 little pennies against the worth to him, of the information in this issue of *Construction Methods*."

"Not on your life! Just multiply this by thirty-six—the number of issues in a charter 3-year subscription and see what an overwhelming sales argument you have."

Not a bad idea at all! Broken down into its component parts and analyzed to your everyday needs, here's what 36 issues of *Construction Methods* contain:

- Up-to-date Highway and Paving Methods, Equipment and Short cuts.
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And all the vast array of information remember, costs only \$1 for 36 monthly issues—or 100 little pennies to follow the master salesman's argument.

Compare in your own mind the good you will get from \$1 invested in *Construction Methods* with the returns upon the same sum spent in any other conceivable way. Only one answer is possible—

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Use the coupon on the next page—NOW**

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Construction Methods

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A Monthly Pictorial of Field Practice and Equipment Illustrating Successful Construction, Maintenance and Material-Handling Methods for General Construction, Highways, Buildings, Industrial Plants and Public Works and Utilities

WILLIAM JABINE,
Editor

VOLUME 9

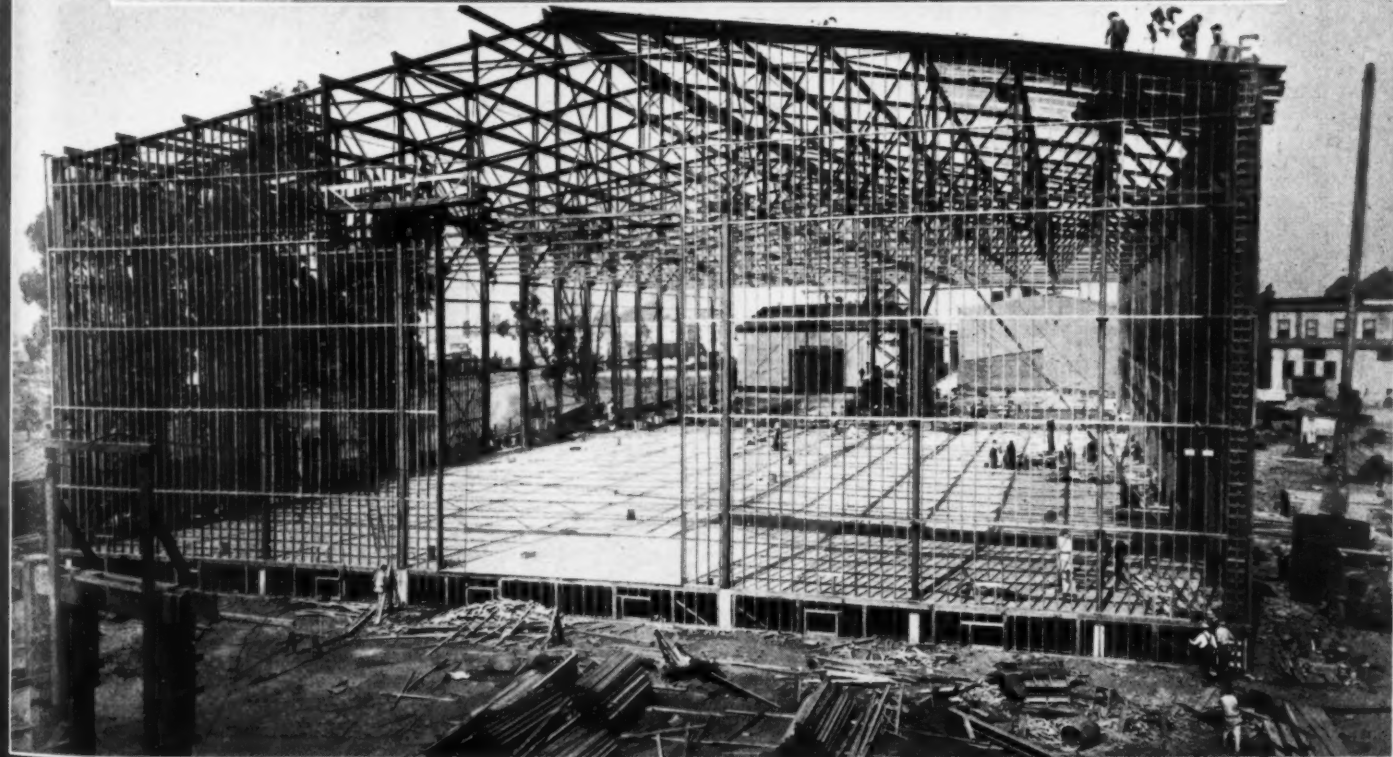
NEW YORK, OCTOBER, 1927

NUMBER 10

There's Money in the Movies

THE high-salaried stars and Will Hays do not get all of the cash that is spent by the movie magnates. The construction men get their share. Two jobs done by the moving picture industry are illustrated on this page. The

upper picture shows a made-to-order town built for a Buster Keaton comedy on the banks of the Sacramento River. Below is an enormous moving picture stage providing 43,680 sq. ft. of space built for the De Mille studios at Hollywood.



Keeping Abreast o



The city of Portland, Ore., is building a storage reservoir in Bear Creek Canyon in the Cascade Mountains. A delegation of city officials headed by Mayor George L. Baker, the big man at the right, recently inspected the job

A big blast in which 500,000 tons of limestone were broken up was set off at Monolith, Cal. The stone will be used in making cement. About 200,000 lb. of dynamite did the trick

© P. & A.



© P. & A.

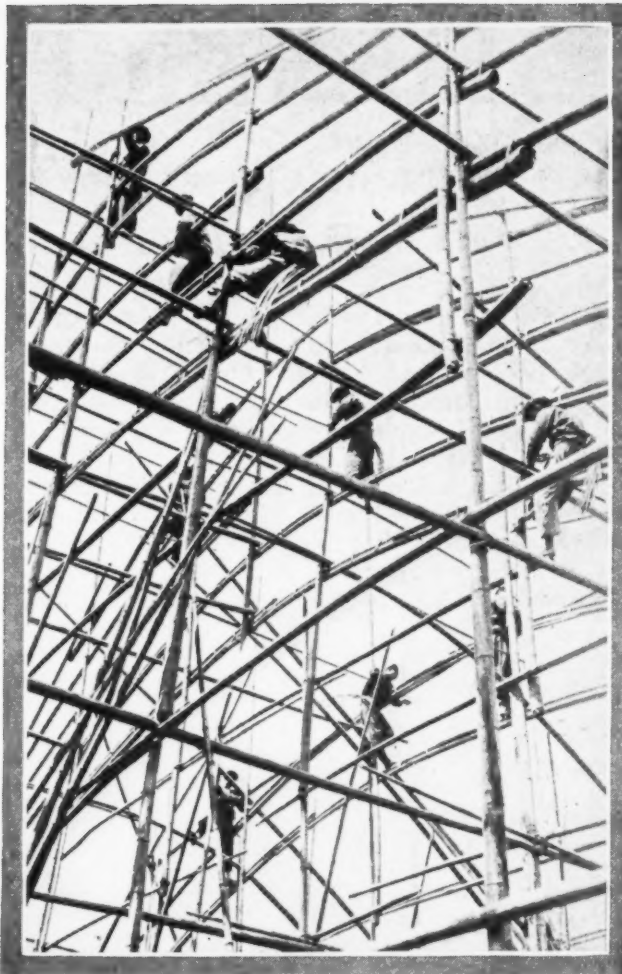
Work is steadily going forward on a big bridge that will cross the Kennebec River between Bath and Woolwich, Me. The spans were floated to the site of the bridge on concrete barges which were made during the World War

© P. & A.



st of Construction

Methods of building scaffolds were described in the August issue of *Construction Methods*. Here is the way the Chinese build them out of bamboo fastened with strips of matting



© P. & A.

A suspension bridge unusual in design has just been finished at Alfortville, near Paris. The structure crosses the Seine and is known as the Girard - Arnodin Bridge



© U. & U.

One of the largest factory buildings in Europe is being built at Siemensstadt near Berlin, Germany, by the Siemens-Schukert Works. The great structure is 600 ft. long and 145 ft. in height



Efficient Bridge Building

Interstate Structure Between Washington and Idaho Completed Ahead of Time

A LARGE volume of highway traffic between the states of Washington and Idaho is now passing over a new bridge across the Pend Oreille River at Newport, Wash. This structure, consisting of four steel truss spans and reinforced concrete approaches, was built by Sam Boudrye of Lewiston, Idaho, who, from the time the job began in June of last year until the bridge was recently opened by Governor Hartley of Washington and Governor Baldrige of Idaho, kept the job moving along steadily without any delays of consequence.

After the bridge itself had been completed, Mr. Boudrye

gave the citizens of Newport a treat by removing the false work in spectacular fashion. Instead of dismantling the falsework piece by piece, he dropped ten bents at a time into the river removing all of the falsework from under each span as a unit. This was accomplished by lumbermen's methods.

All piles were notched at the water's edge, three bents at one end of each span being notched to the west, and seven bents notched to the east. After the planking had been removed for the full length of the span, the 4x12-in. keys between the three-bent section and the seven-bent section

Miss Hamberg, the first white child born in Newport, Wash., cut the ribbon which opened the bridge to traffic. The three men are from left to right: Gov. H. C. Baldrige, Idaho; Fred L. Wolf, editor, *Newport Miner*, and Gov. Roland H. Hartley, Washington



The four steel spans of the new bridge have a total length of 720 ft. The approaches have a combined length of 525 ft.



The falsework fell as a unit exactly as planned

also were pulled out. In other words, one panel was daylighted. This was done in order to make certain that all of the falsework would fall clear of the concrete piers. As the falsework was 64 ft. in height built on 14-in. piles, it was important that the concrete piers be protected from impact.

When this work had been done, a free runner block through a multiple sheave block and a single-drum Le Roi American hoist unit was attached to the cap top of the first lift of the three-bent section. This was done in order to cause the three-bent section to fall outward striking the other bents and collapsing them in turn. The photograph at the top of this page shows how well the plan worked, the falsework coming down as a unit and falling clear of the piers.

The falsework under the other three spans was removed in exactly the same manner. The top piles, lumber capping and planks were salvaged. This part of the job was handled by a boss rigger and five men who notched all of the piles in 1½ days. The same crew, with the aid of a small power launch, cleared away the debris and salvaged what was worth saving. The piles had to be cut within 2 ft. of the river bed, and this was done by exploding dynamite under water, the dynamite being lowered with a drop chain. Five sticks were used for each pile and they did a clean job at a cost of about 50 cents per pile.

The new bridge rests on five river piers, all on pile foundations. The two main piers are dumb-bell shaped, 90 ft. in total height, and rest on 87 winter-cured tamarack piles driven to a penetration of 18 ft. The other three piers rest on 67 piles each. Open cofferdams, 42x15 ft. inside dimensions, were sunk to a depth of 30 ft. below water level, and a tremie concrete seal 6 ft. thick was placed through a 35-ft. spout. The cribs were built up of 12x12 timbers laid horizontally with 30-in. steel drift pins at intervals of 3 ft. in each course to give vertical stiffness. They were carefully caulked, and no leaks occurred in the seals.

Load boxes weighing 150 tons were used to sink the cofferdams. On the two center piers two railroad jacks were used. The falsework was erected in two lifts. Piles for the first

lift were driven to a penetration of about 15 ft. A skid derrick was started on the first lift to handle the excavating and was followed by another rig for placing forms and concrete. The material yard and concrete plant were established on the level of the second lift. A narrow-gage track was moved up to this deck, and timbers and concrete were passed down to the first deck. In this way the entire job was speeded up. The narrow-gage track was laid on cantilever beams at the side, making it possible to work on falsework, forms and steel at the same time. Cars were moved by a hoist operating an endless cable. Materials were brought in over a 1,200-ft. spur of the Great Northern Railroad, gravity bunkers being provided for sand and gravel.

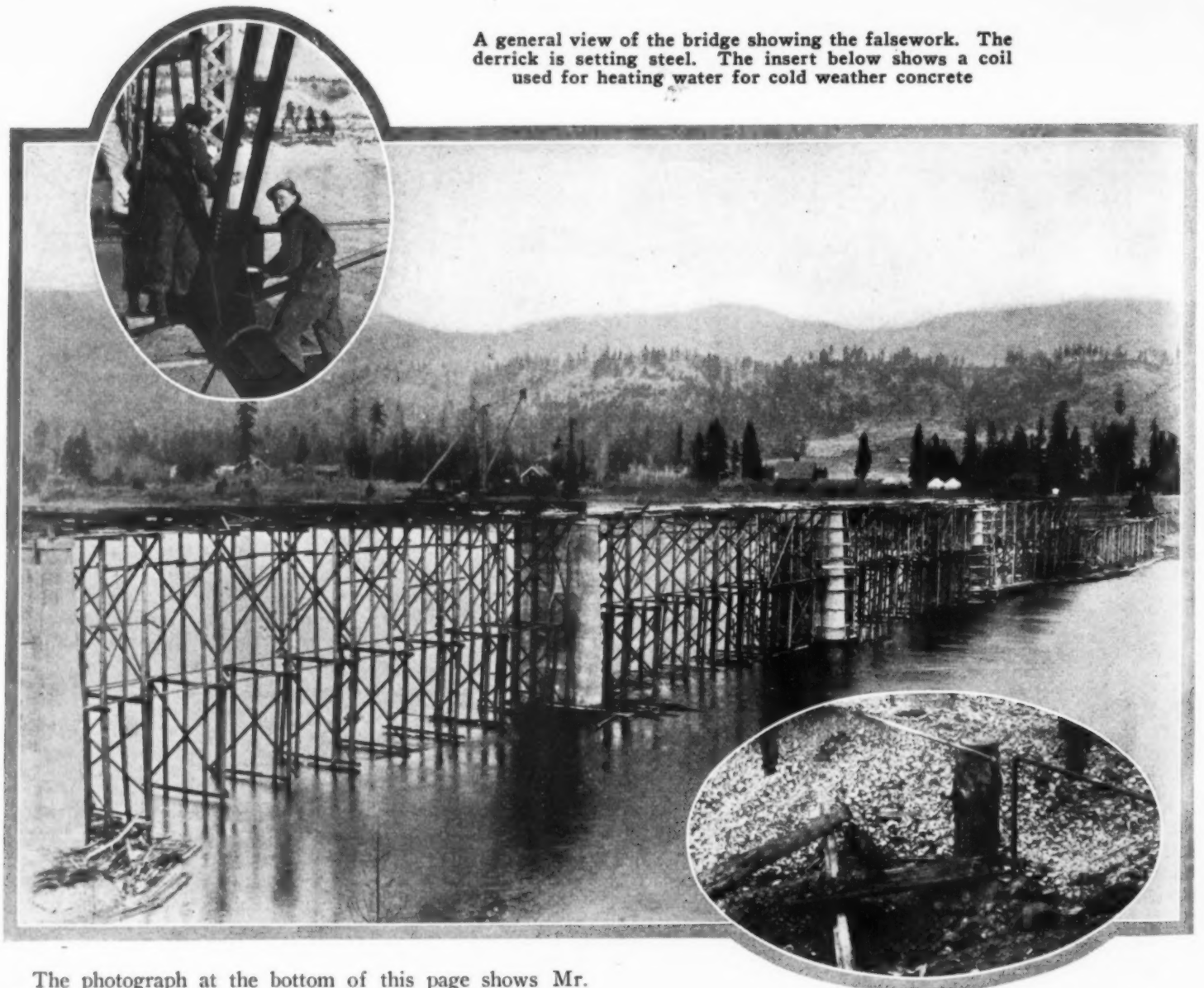
The seals and bases for two piers were poured from the other side of the river, concrete being carried in buggies over a runway constructed for the purpose. About 60 cu.yd. a day could be placed from a 1-sack mixer, and the work was advanced considerably by this expedient. The steel was erected by a traveler.

The total length of the bridge is 1,246 ft., of which 720 ft. are taken care of by the four steel truss spans. The new structure carries a concrete roadway 20 ft. in width, with a sidewalk 5 ft. wide on the upstream side. It is 58 ft. above the low water mark. Cement in the bridge came from the Metaline Falls, Wash., mill of the Lehigh Portland Cement Company. The contract price for the job was \$198,000.

The bridge was finished ahead of schedule, and as part of the celebration the old ferry was burned in midstream after dark.

The contract for the work was let by the Idaho Department of Public Works, and the work was done under the direction of the Bureau of Highways, of which Charles Kyle is bridge engineer. The resident engineer in immediate charge of the work was Joseph A. Murphy who furnished the information in this article describing the removal of the falsework. Grant Conner was the superintendent for Mr. Boudrye.

A general view of the bridge showing the falsework. The derrick is setting steel. The insert below shows a coil used for heating water for cold weather concrete

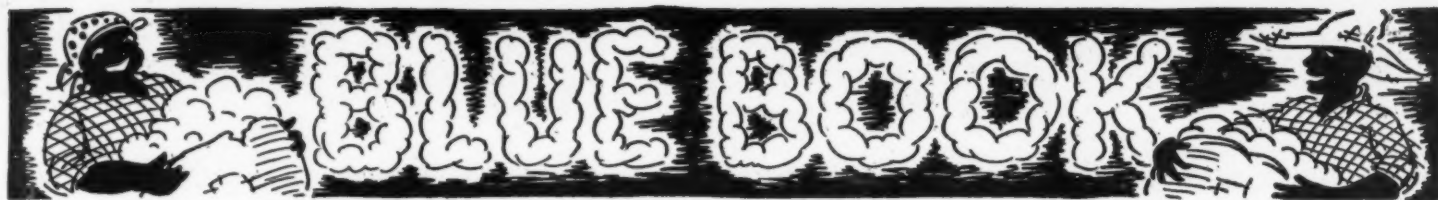


The photograph at the bottom of this page shows Mr. Boudrye chatting with W. J. Geary, ferryman for the last ten years.

The celebration at the opening of the bridge was attended by the governors of the two states, Senator C. C. Dill of

Washington, Congressman Burton L. French of Idaho and Congressman Sam B. Hill of Washington, who represent the two districts connected by the bridge.





Georgia Builds Coastal Highway

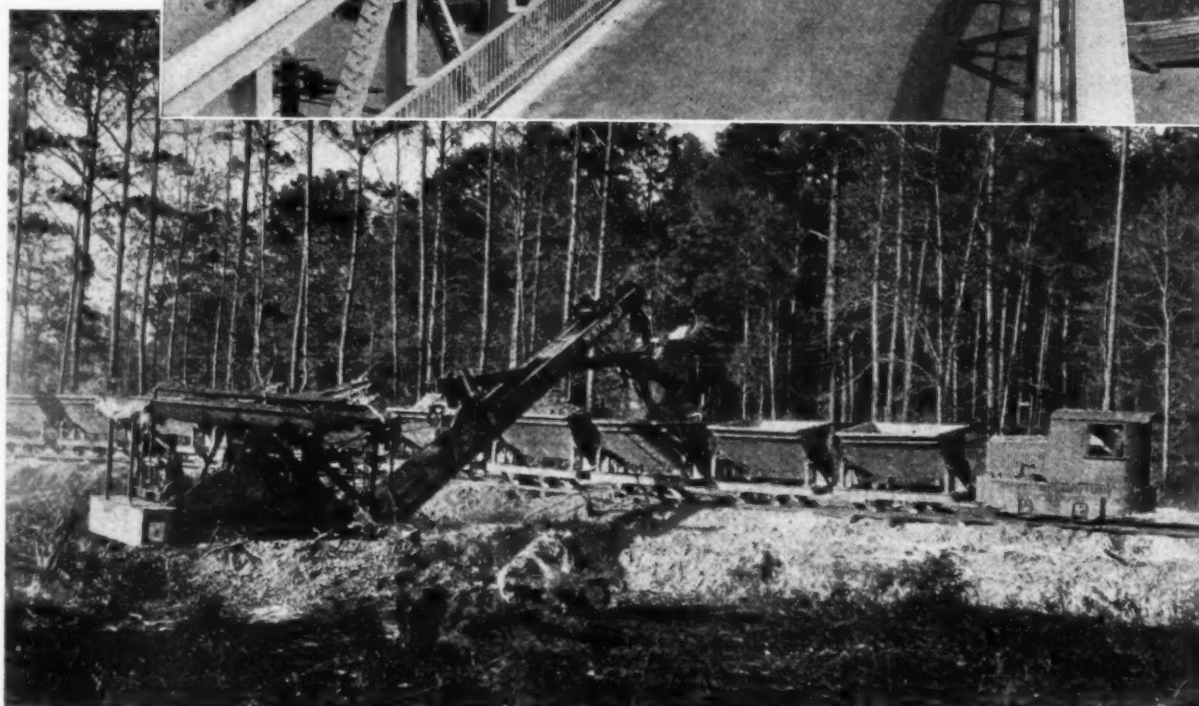
A GREAT variety of types of highway construction are being employed in building the Coastal Highway through Georgia. Almost every kind of work except heavy grading can be found along the 104 miles of road being improved. Some of the most interesting phases of the whole construction program are the surfacing with bitulithic and Portland cement concrete, the unusual six-pile bents in the timber bridges, and the hydraulic fill across the marshes of the Turtle River Cutoff.

The accompanying illustrations were selected to show useful construction methods and at the same time to give an idea of the variety of high-

way types being built between the St. Mary's River, on the Florida line, and the northernmost point of the improvement, fourteen miles south of Savannah. The new road follows the old line pretty closely except at the Turtle River Cutoff, south of Brunswick, where 15 miles of new construction will reduce the distance by half and eliminate fourteen railroad grade crossings.

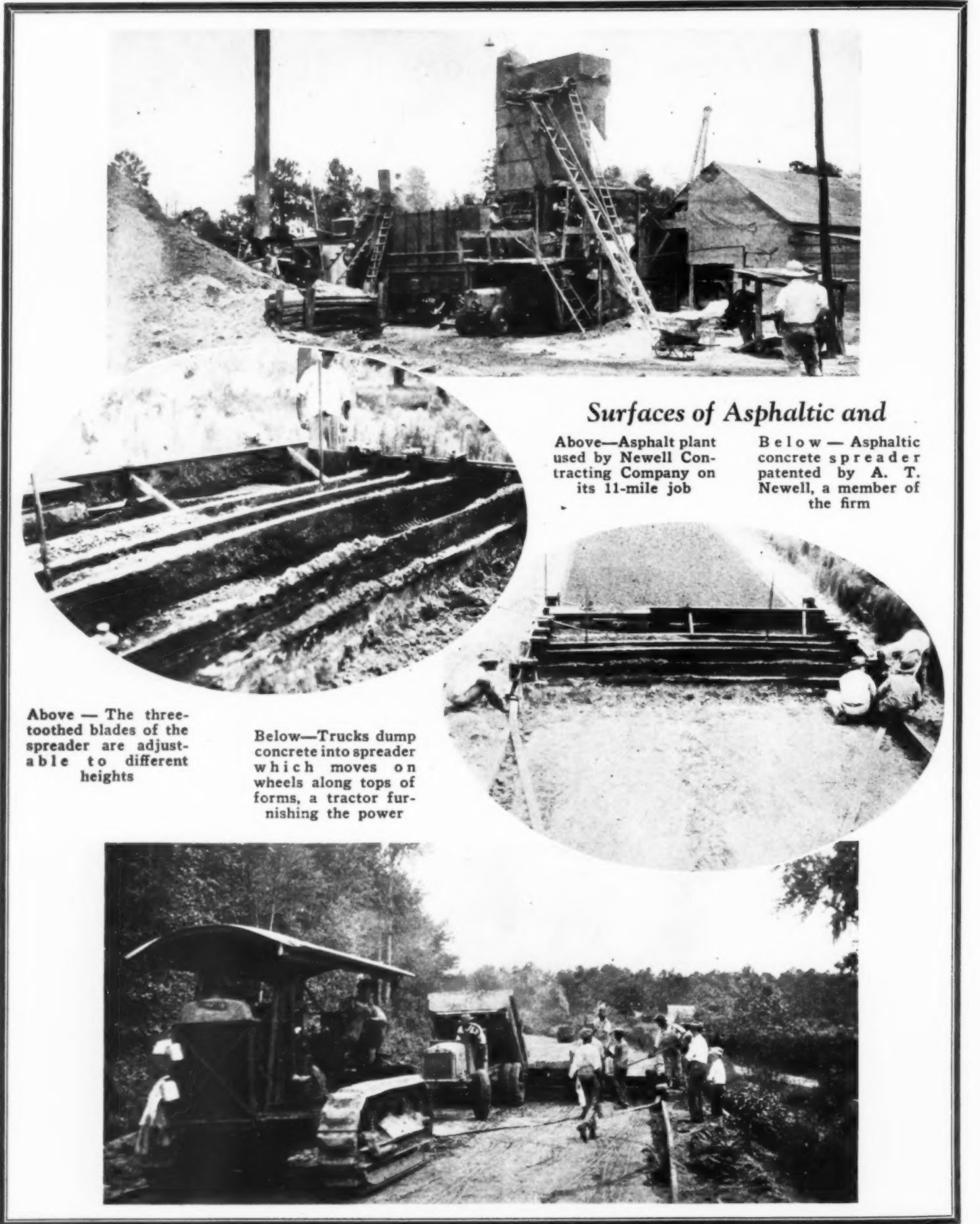
The highway is being built with a combination of state, federal and Coastal Highway District funds. Construction operations are mainly under the supervision of H. J. Friedman, division engineer of the State Highway Board of Georgia, Division No. 7, with headquarters at Savannah.

The St. Mary's River Bridge was built by the Florida State Highway Department



F. M. Jones made the White Oak fill with dump cars and gas locomotives

BLUE BOOK



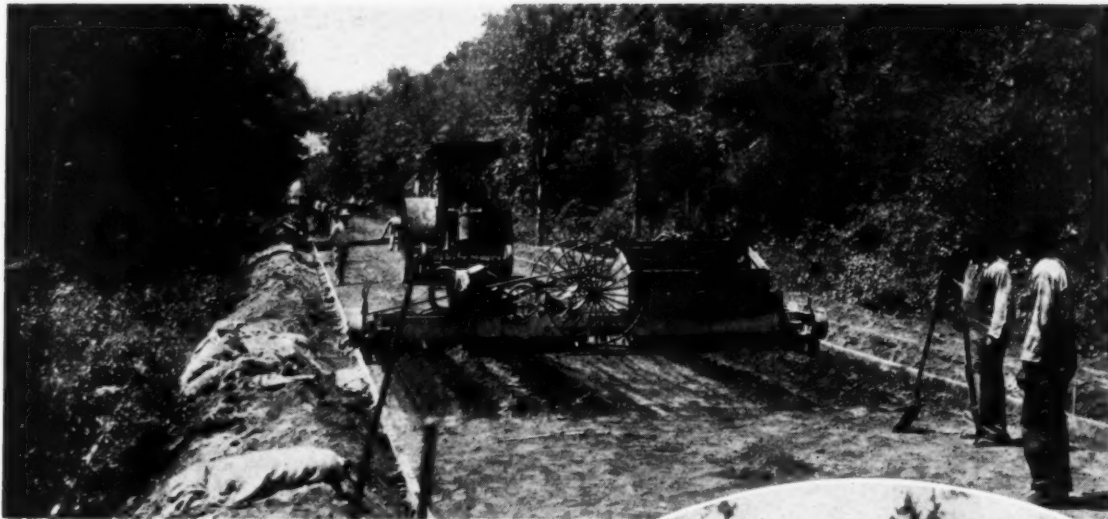
Surfaces of Asphaltic and

Above—Asphalt plant used by Newell Contracting Company on its 11-mile job

Below — Asphaltic concrete spreader patented by A. T. Newell, a member of the firm

Above — The three-toothed blades of the spreader are adjustable to different heights

Below—Trucks dump concrete into spreader which moves on wheels along tops of forms, a tractor furnishing the power



Portland Cement Concrete

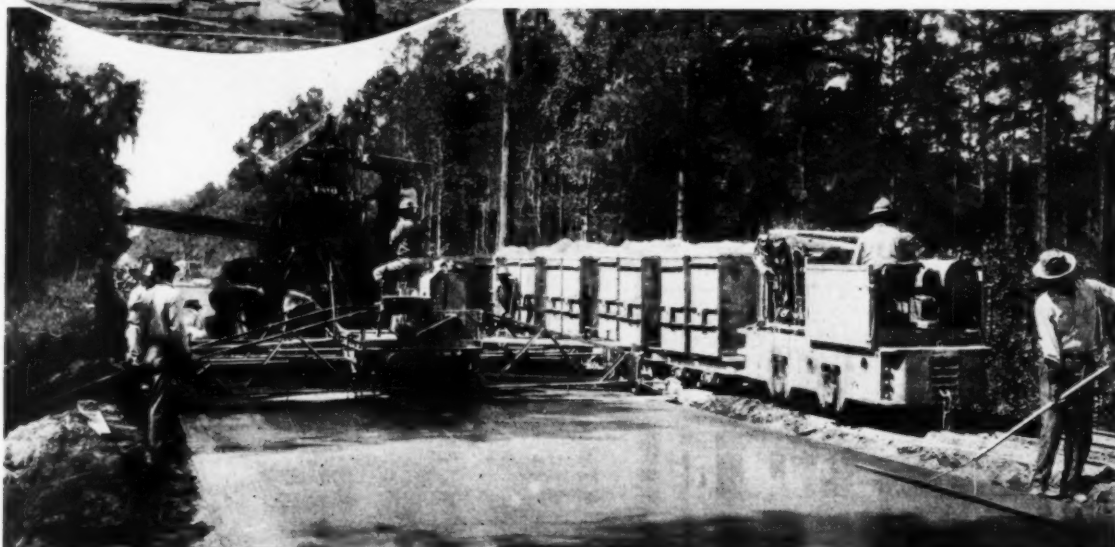
Above—A Lakewood subgrader saved concrete for the William P. McDonald Construction Company

Below — Aggregates were weighed at both batching plants on this 33-mile job



Above—Movable canvas awnings on wheels protected the concrete until it could be covered

Below—The George D. Whitcomb Company had the sub-contract for the hauling by industrial railway



BLUE BOOK

Along the
New Coastal
Highway



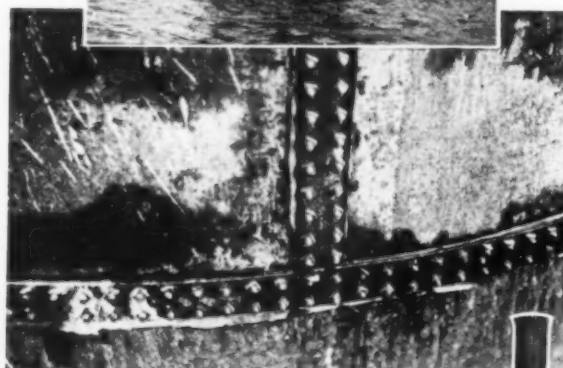
On the
Turtle River
Cutoff

Above—A six-pile bent developed by the engineers in charge and which has created great interest. This bridge was built by T. P. Wright & Company

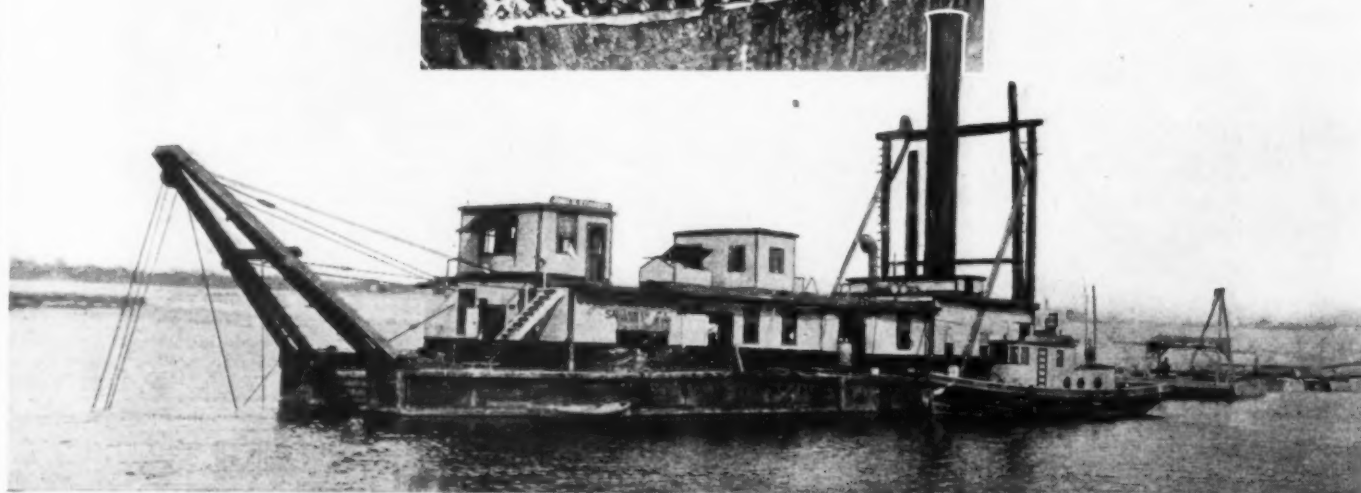


At left—The shell for this drawspan pier was sunk inside the fender system by excavating with clamshell buckets and bolting on ring sections

Below—The 20-in. suction dredge with which the Globe Dredging Company pumped sand from the river bottoms for making fills



At left—Two layers of roofing felt kept the bolted joints watertight under a 19-ft. head after the shell was sealed and unwatered



Concrete Structure Replaces Old Castle Bridge in Berlin

Heavy Reinforcing Is Feature of New Work in Heart of German Capital

By Wyatt B. Brummitt, Portland Cement Association

THE strain of modern life has been the undoing of many of the old world's historic structures. The rushing, pounding vibration of present-day traffic was not even a nightmare dream when the bridges over the Seine, in Paris, or over the Spree, in Berlin, were built.

Consequently, the Seine bridges are frequently closed for repair. And last winter the Schlossbrücke (Castle Bridge) in the very center of Berlin's imposing architectural scheme, began to crack and settle dangerously. It was closed to traffic and, on investigation, found to be so badly weakened that repair was inadvisable. A new bridge was necessary.

German bridge engineers, called on to replace the historic structure with a new one in harmony with the setting, decided on reinforced concrete. The accompanying illustration shows a part of the remarkable system of reinforcing used in the work. The reinforcing for the main arch is carried far down on the sides and there tied into the reinforcing for the ap-

proaches. It will be seen that the monumental statuary which ornamented the approach on the castle side has not been disturbed. Similarly, the approach from the other side, which connects with the famous boulevard, Unter den Linden, is to be maintained essentially as it was before reconstruction.

The new bridge will permit traffic, consisting of the heaviest motor bus and passenger vehicle type, to flow uninterruptedly from Unter den Linden to the plaza in front of the Castle and the other buildings of the group which are the ceremonial centers of the capital. The National Gallery, the Temple of Fame and the Old Museum appear in the background of the photograph.

The use of concrete to replace old masonry structures is steadily gaining in Europe. Both in France and Germany a number of concrete bridges have been built in the last few years. The new Castle Bridge in Berlin is another example of the European trend toward concrete for such structures.



Reinforcing for main arch of new bridge is tied into the reinforcing for approaches

Lining An Irrigation Canal

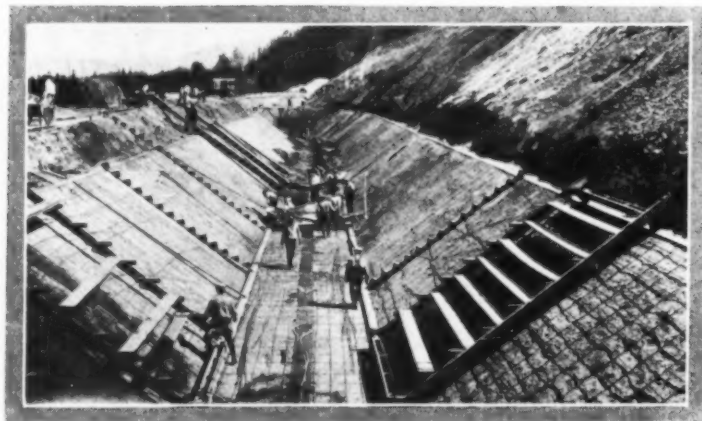
C. W. Wood

Office Engineer

Bureau of Reclamation

Easton, Wash.

Wins First Prize of \$25.00

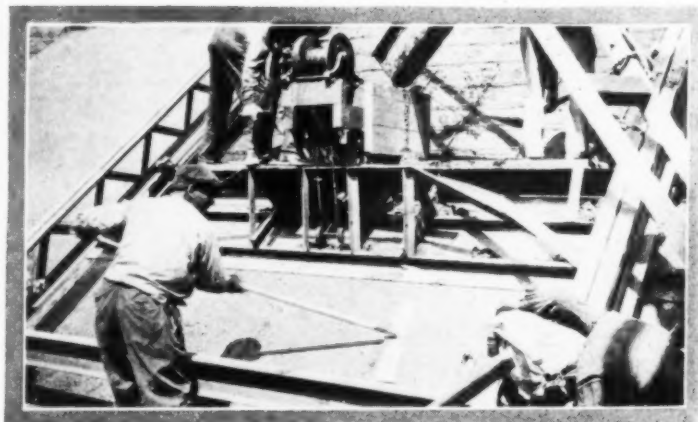


1. Hand trimming banks of canal and placing reinforcing steel

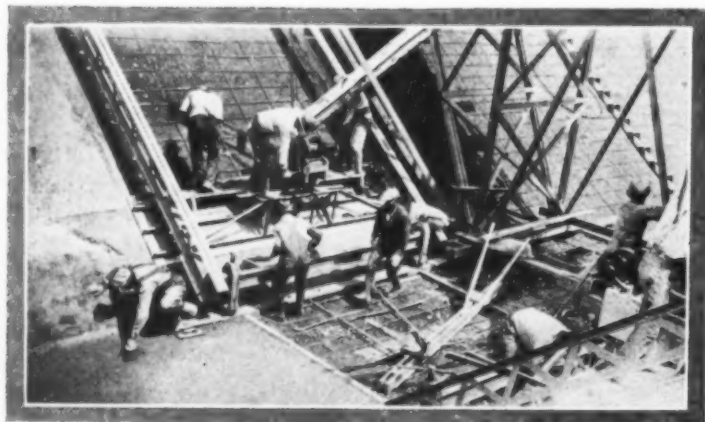
The General Construction Company of Spokane, Wash., is lining the Kittitas Main Canal at Easton, Wash., with concrete. This lining is 3 in. thick with $\frac{3}{8}$ -in. steel reinforcing at 12-in. centers



2. This concreting plant or "Jumbo" was designed by Tom Myall, in charge of the work for the contractor



3. A close-up of the "Jumbo" showing 3x14-ft. steel panel being pulled continuously up the slope. Concrete is being shoveled in ahead of it and the finished product may be seen behind. A 14-ft. panel of concrete was placed on both sides and floor in 45 minutes. The concrete had a 3-in. slump



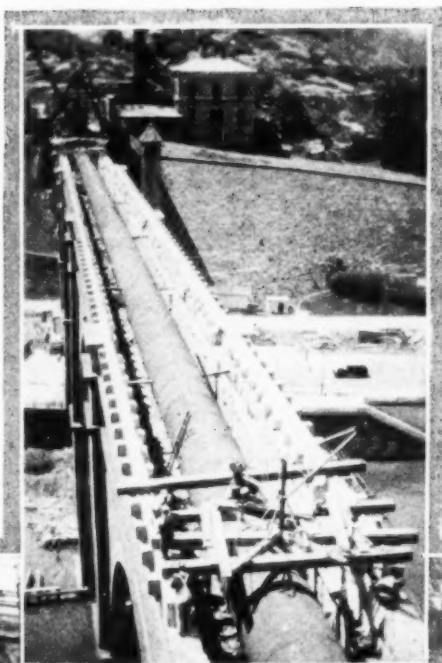
4. The 14-ft. panel is placed simultaneously on both sides of the canal, the bottom being poured last. The "Jumbo" is mounted on wheels running on screeds set to line and grade, so that platform and all are pushed ahead when the panel is completed



5. The finished product. The canal is designed to carry 1,320 sec.ft.

Rebuilding Old High Bridge

The reconstruction of High Bridge which carries the original Croton Aqueduct across the Harlem River, New York, is now well under way. The present part of the work is being handled by the McClintic-Marshall Company of New York City



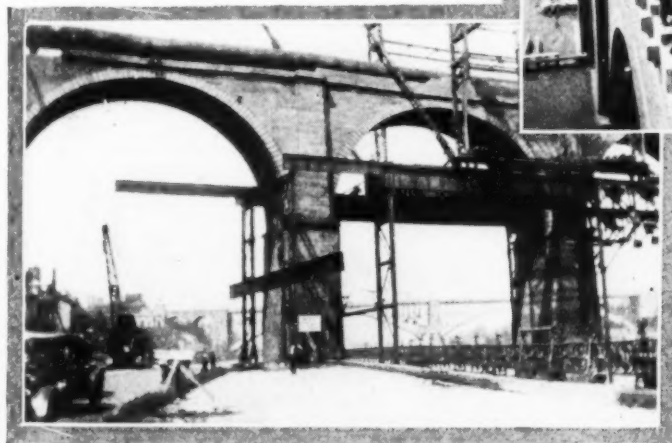
William G. Rapp

Engineer
McClintic-Marshall Co.,
New York City

Wins Second Prize of \$15.00

The last span of the false work is cantilevered over the Speedway

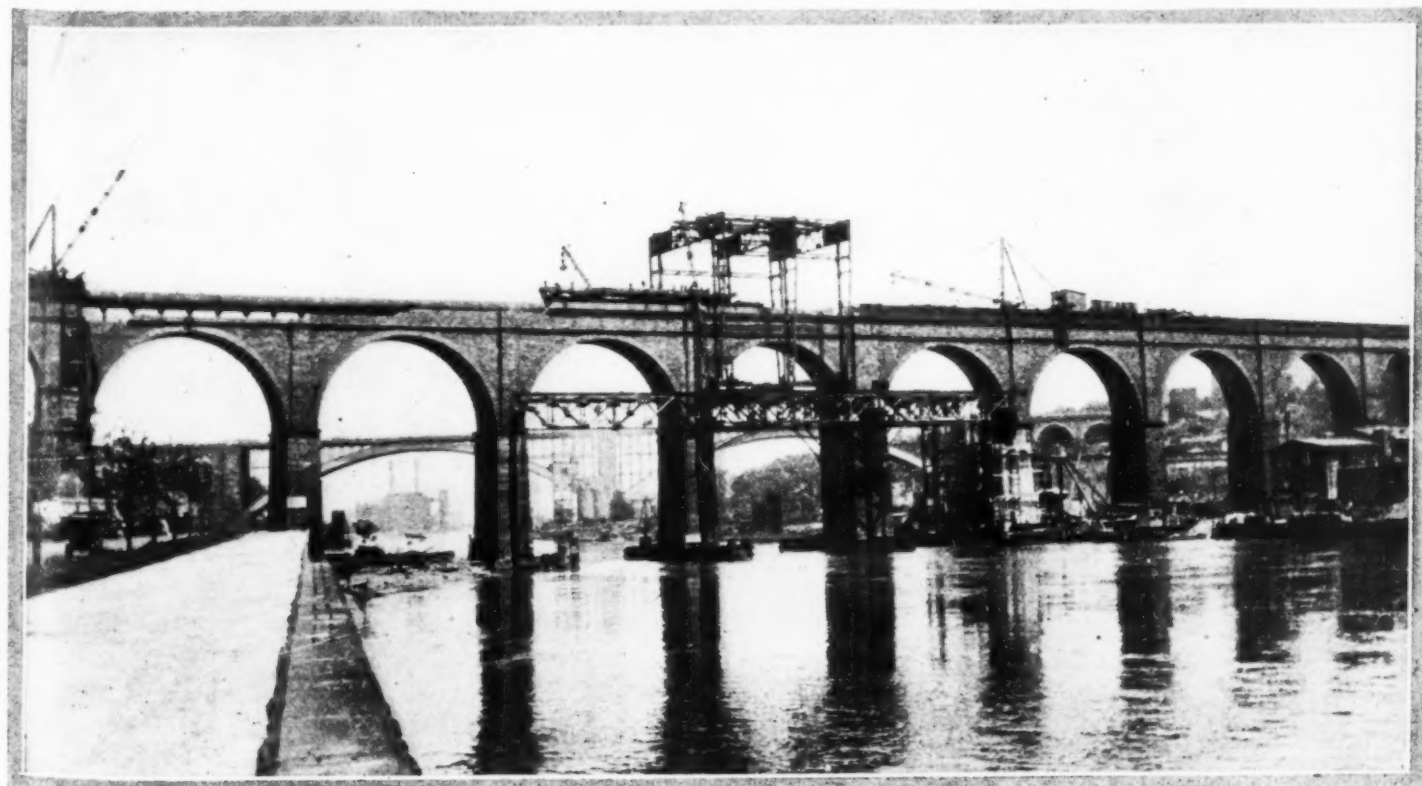
Removing a section of the old wrought iron pipe taken from bridge



Below—A general view of the job showing falsework and traveler



At top—The bridge from above showing the old pipe



Get Your Job Into Print

OUR prize winners this month come from the states of Washington, New York and North Carolina, so three widely separated sections are represented. That's what we like. Many jobs are now nearing completion. Let's have some pictures of them before you put on the finishing touches. Three prizes are offered—first, \$25.00; second, \$15.00, and third, \$10.00. Get out your camera and see if you can win one of them.

THE conditions are stated herewith: Photographs must be taken by a man actually employed on the job and should be sent to *Construction Methods*, Tenth Avenue at Thirty-sixth Street, New York City, by Monday, October 10, and plainly marked Photographic Contest. Photographs received after that date will be entered in the December contest. *Construction Methods* will pay for all non-prize winning photographs used.

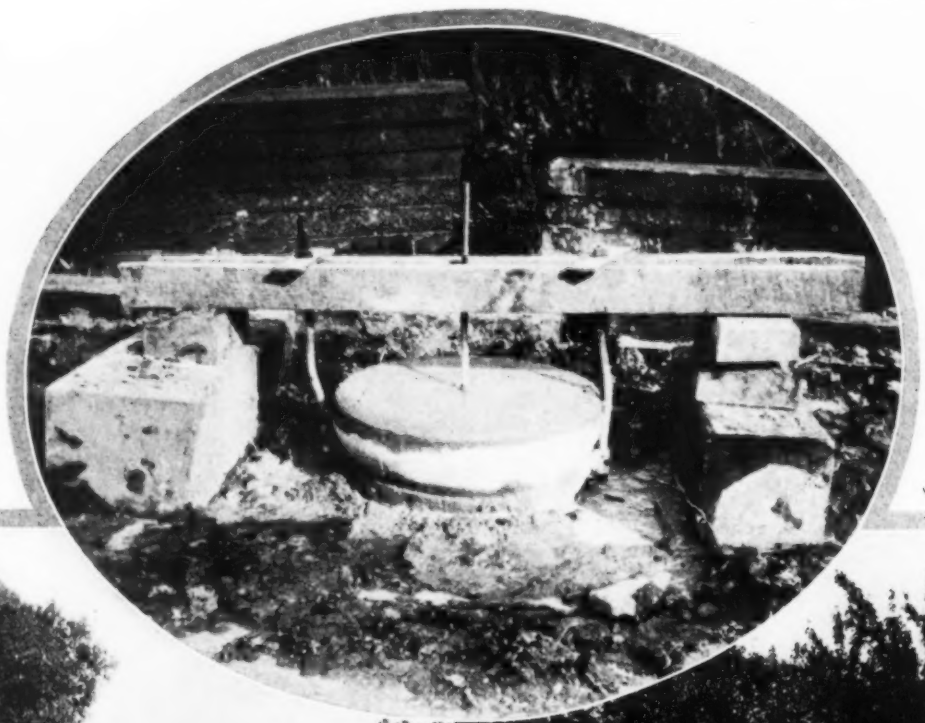
North Carolina has had to work hard to maintain Route 34 near Elizabeth City where the highway crosses a swamp and at times is covered by tide-water. Experiments have been made with bridges anchored to creosoted piles. One of these piles with its concrete jacket is shown in the oval

C. S. Biggs

*Cost Accountant,
North Carolina Highway
Commission,*

Raleigh, N. C.

Wins Third Prize of \$10.00



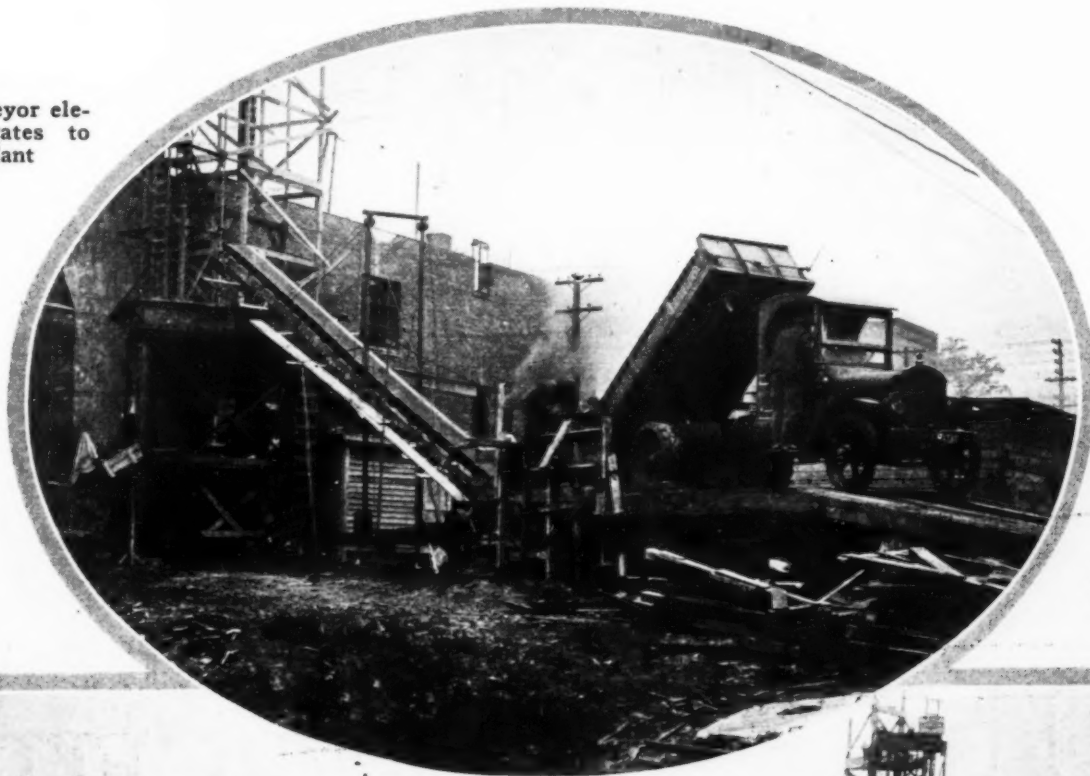
Heavy Steel Set in Advance

IN erecting the building for Des Moines Consistory No. 3 at Des Moines, Iowa, the contractors, Arthur H. Neumann & Company of that city, set some of the heavier structural steel in advance of the pouring of the concrete floors. This was done because the floors could not take the necessary loads. The steel was set with the Chicago boom shown in the lower photograph. It could be moved from one column to another in four hours.

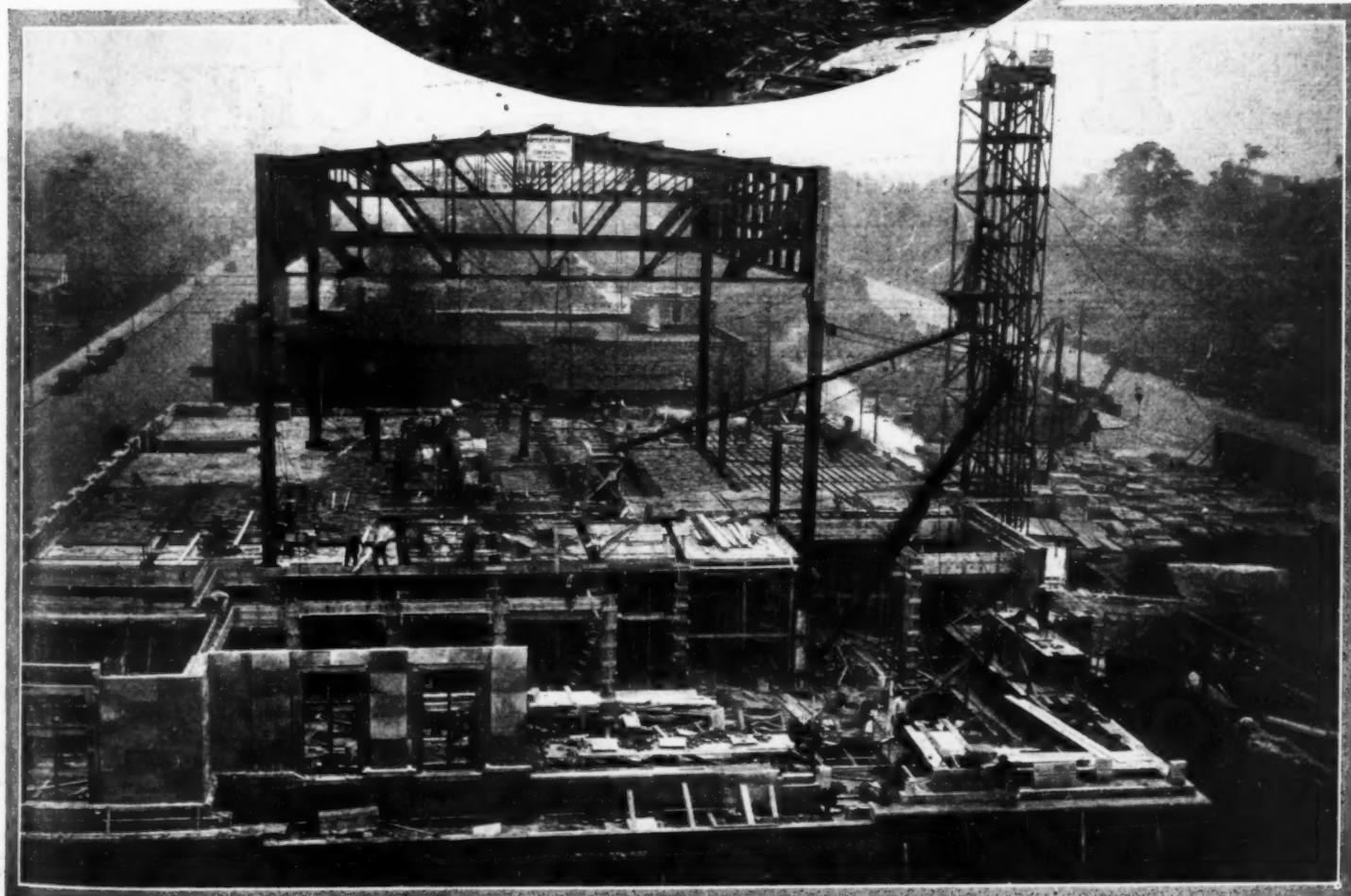
The concreting plant consisted of a Koehring mixer and a Blaw-Knox batcher plant with inundator. A Barber-Greene portable conveyor was used to elevate the material to the batcher plant.

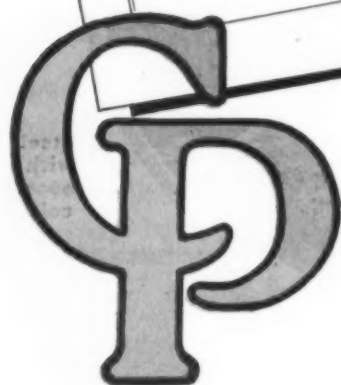
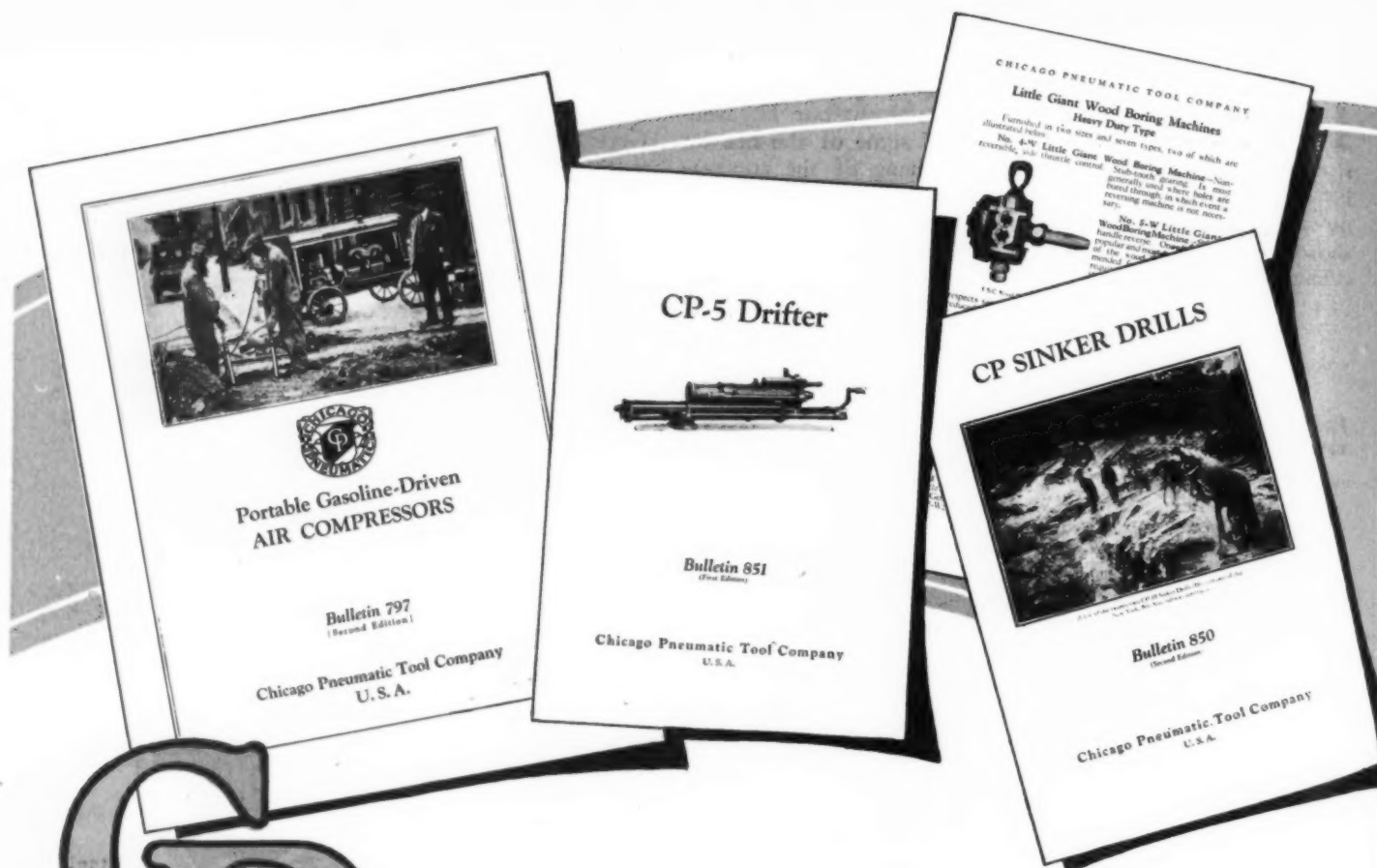
The building is 163 ft. by 115 ft. and is 85 ft. high. It was designed by Wetherell & Harrison, with Keffer & Jones as associate architects. E. W. Olmstead was the superintendent for the contractors.

Portable conveyor elevating aggregates to batcher plant



Steel was set with a Chicago boom with a column as mast





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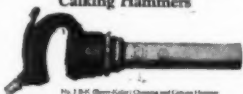
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Construction Men Are at Work

Pile drivers started at each end and worked toward center



The work of restoring the damage done by the Mississippi floods is now in full swing. These photographs show the methods used in closing up the crevasse made at Caernarvon, 14 miles below New Orleans on April 29 last, when the levee was dynamited in order to save the city

August 1



August 8

Crevasse Closed



Rebuilding Mississippi Levees

The gap, which was about 4,000 ft. wide, was closed by building a bulkhead, behind which a new levee later will be constructed. This bulkhead was built by Hampton Reynolds, contractor, of New Orleans, under the supervision of the Orleans Levee Board. The job was done in 38 working days

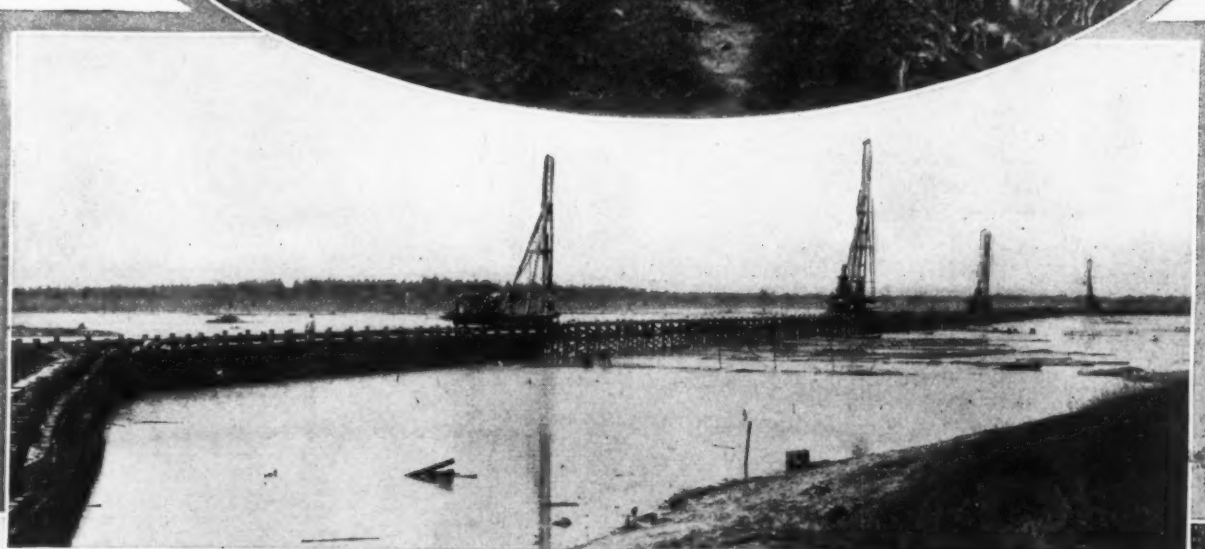
Photographs contributed by E. E. Elam, Assistant Engineer of Orleans Levee Board

August 15



August 22

In 38 Working Days



More Power for Connecticut

Rocky River Hydro-Electric Development Will Utilize
Flood Waters of Housatonic



Main dam nearing completion. The pumping plant at right supplies clear water for sluicing. The canal may be seen above pumping house

AN UNUSUAL hydro-electric development is now under way in the northwestern part of Connecticut. The Connecticut Light & Power Company is building a large earth dam which will impound 7,000,000 cu.ft. of water and cover 5,600 acres. The dam is in the valley of the

Rocky River, but the flow of this stream is not sufficient to fill the reservoir, and additional water will be pumped up from the Housatonic River into which the Rocky River flows only a short distance from the point at which the dam is being built.

The work as it appeared November of last year when the construction of the corewall was under way





Excavating canal during the winter months

At first, this plan of pumping water up hill for the purpose of letting it run down again in order to generate electric power seems uneconomical. The explanation lies in the fact that the Connecticut Light & Power Company has other power houses in the Housatonic Valley which are equipped with turbines that can be used in time of high water, when there is no load on the line and the flood water would be wasted over the spillways. These turbines will be used to supply the power for pumping water from the Housatonic up into the new storage reservoir which is 230 ft. above the river level. Thus, the company will be using its surplus power at a time when it is not needed to supply its consumers' demands for power.

In addition to the main dam, five small dams are being constructed by the U. G. I. Contracting Company of Philadelphia which has the contract for the entire job. The work, which will cost about \$4,000,000, began in July, 1926, and probably will be finished about February of next year.

The main dam is built of earth with a wood core, is 930 ft. long, and tapers from a width of 680 ft. at the bottom to 20 ft. at the top. The wood corewall for this dam is of the Wakefield type, consisting of three thicknesses of 2-in. plank, making a tongue and groove wall 6 in. thick. It extends from the high water line down to a concrete core 2-ft. thick which is built to a height of 10 ft. above the original ground.

The construction of the dam has gone forward steadily by the hydraulic method, and the work has been so figured that the entire cut necessary in excavating the canal just equals the amount used in the dam, a total of 780,000 cu.-yd. of excavation. A big Bucyrus dragline has done the stripping and preliminary work which has proved much more difficult

than was anticipated because of the presence of great quantities of boulders. In the early stages of the work, it was found possible to sluice the material into the dam directly through the canal, and this procedure greatly facilitated the speed obtained. At present the dam is nearing completion.

The pumping units which are handling the job consist of six Allis-Chalmers 10-in. centrifugal pumps for supplying the clear water which is pumped up from a basin in back of the dam and later returned to this basin for use over again. Two 12-in. pumps, made by the Morris Machine Works, also are on the job. The power stations will have a capacity of 25,000 kw. operating under a 230-ft. gross head. The pipe used in pumping the material into the dam was made by the American Manganese Steel Company. The pipe carrying this material divides into two sections at a point just above the dam, and a special valve has been rigged up which makes it possible to shut off either pipe and transfer the flow to the other. A picture of this valve is shown on page 25.

Much of the other work has been handled by a P&H dragline. This machine did some particularly efficient work in the early stages of the job, and in one of the photographs on page 24, it is shown filling the piers for a temporary bridge that had to be built.

The power house is located on the bank of the Housatonic River and is being carried down to bed rock, considerably below the river level. In it will be installed the big turbine and also two of the largest Worthington pumps for the given head that have ever been built. These pumps will be used in raising water from the Housatonic up to the storage reservoir.

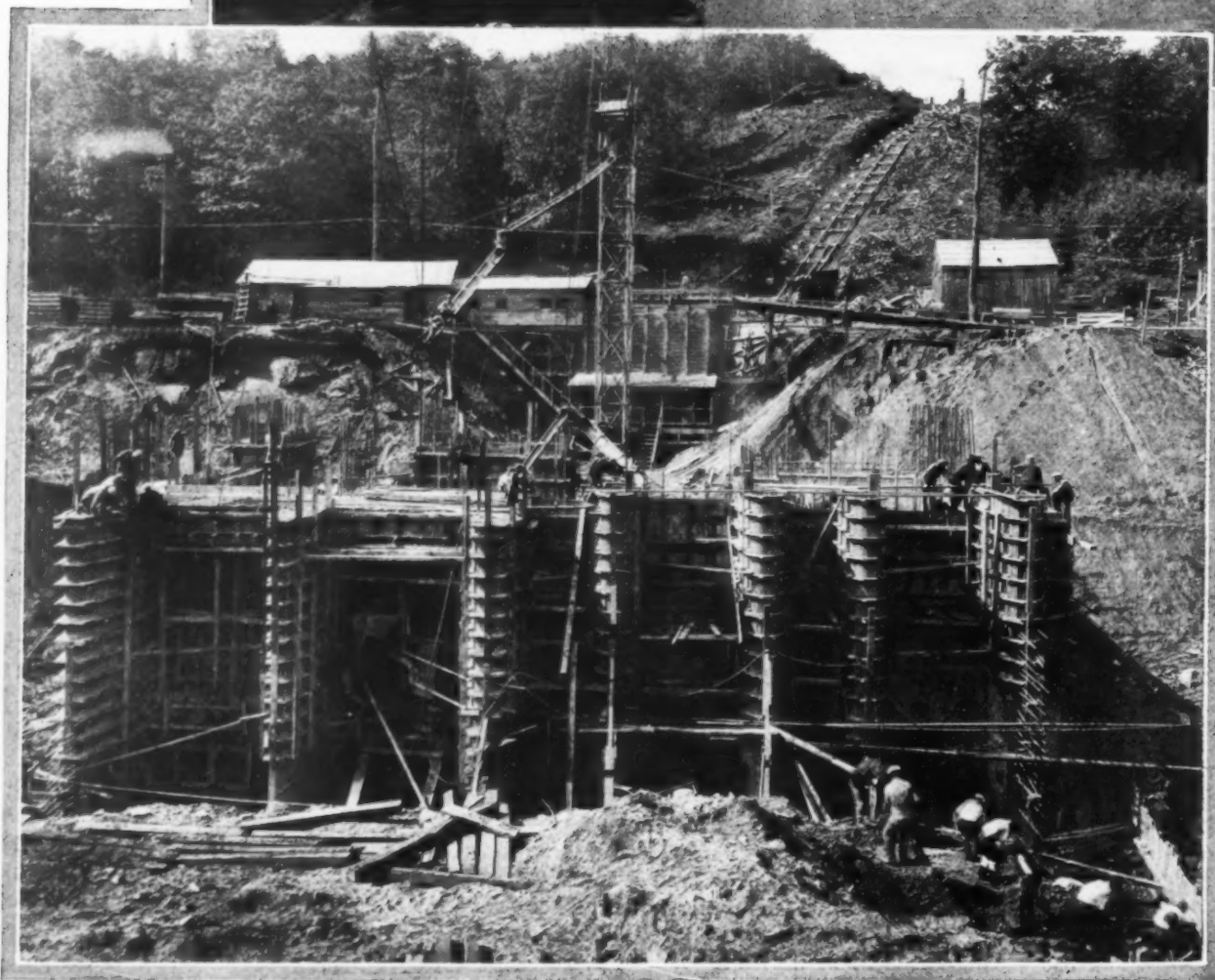
Gravel pits for supplying aggregates for the small dams also have been opened up and are being operated by the contractor. One of them is shown on the cover of this issue of *Construction Methods*.

Work has been going on continuously since the job began. Much of the clearing of the area to be covered by the reservoir was done during the winter months, as a large percentage of this area was swamp land and could be more readily cleared when it was frozen over. At that time about

1,000 men were employed. The normal working force is about 500, and a large number of the men are housed in a camp built close to the site of the dam. W. M. Hall is in general charge of the work and R. L. Clark is superintendent on the main dam and powerhouse work.

When completed, the Rocky River Development will effect a radical change in the landscape of the northwestern part of Connecticut as the lake formed by the main dam will be the largest in the state. The head of the lake will be not

The P & H crane operating in mid-stream while filling piers for temporary bridge



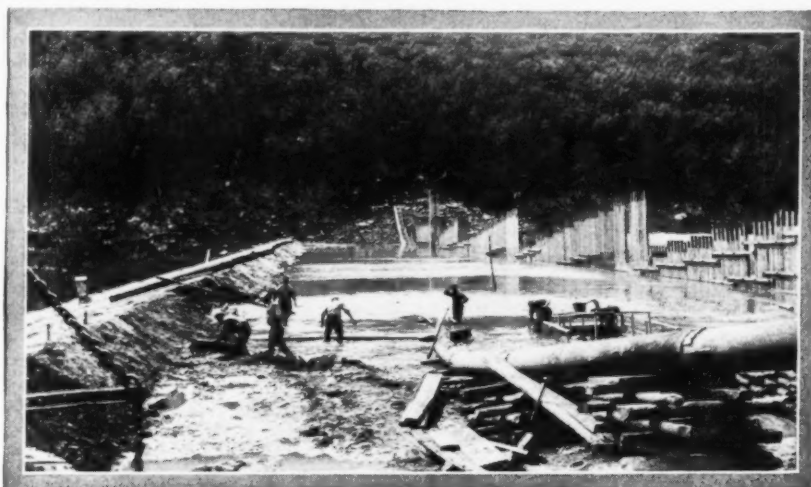
Concrete sub-structure of power house which is on the bank of Housatonic River



Above — This valve at the junction of pipe lines makes it possible to cut off either line and use the other



Above — Sluicing material for the dam. This photograph gives a good idea of the rocky nature of the soil



Material arriving at the dam behind the corewall

far from Danbury which is 15 miles from New Milford.

The working out of the plan for utilizing both the flow of the Rocky River and the flood waters of the Housatonic

will be followed with great interest by the electrical industry. It is a practice that has been tried out in some sections of Switzerland with success.

New Specifications for Michigan Snow Fence

The first tangible results of the snow tests made by the Michigan Highway Department last winter has been a change in the specifications for snow fence, which provides for a fence 4 ft. high with the pickets only 1½ in. apart. No

stretch will be permitted. The photograph below shows V. R. Burton, who has been in charge of the tests, inspecting the work at the experimental station. He is wearing his favorite pair of snowshoes.



Long Island Gravel for N

Belt Conveyors Handle to Barge at Well

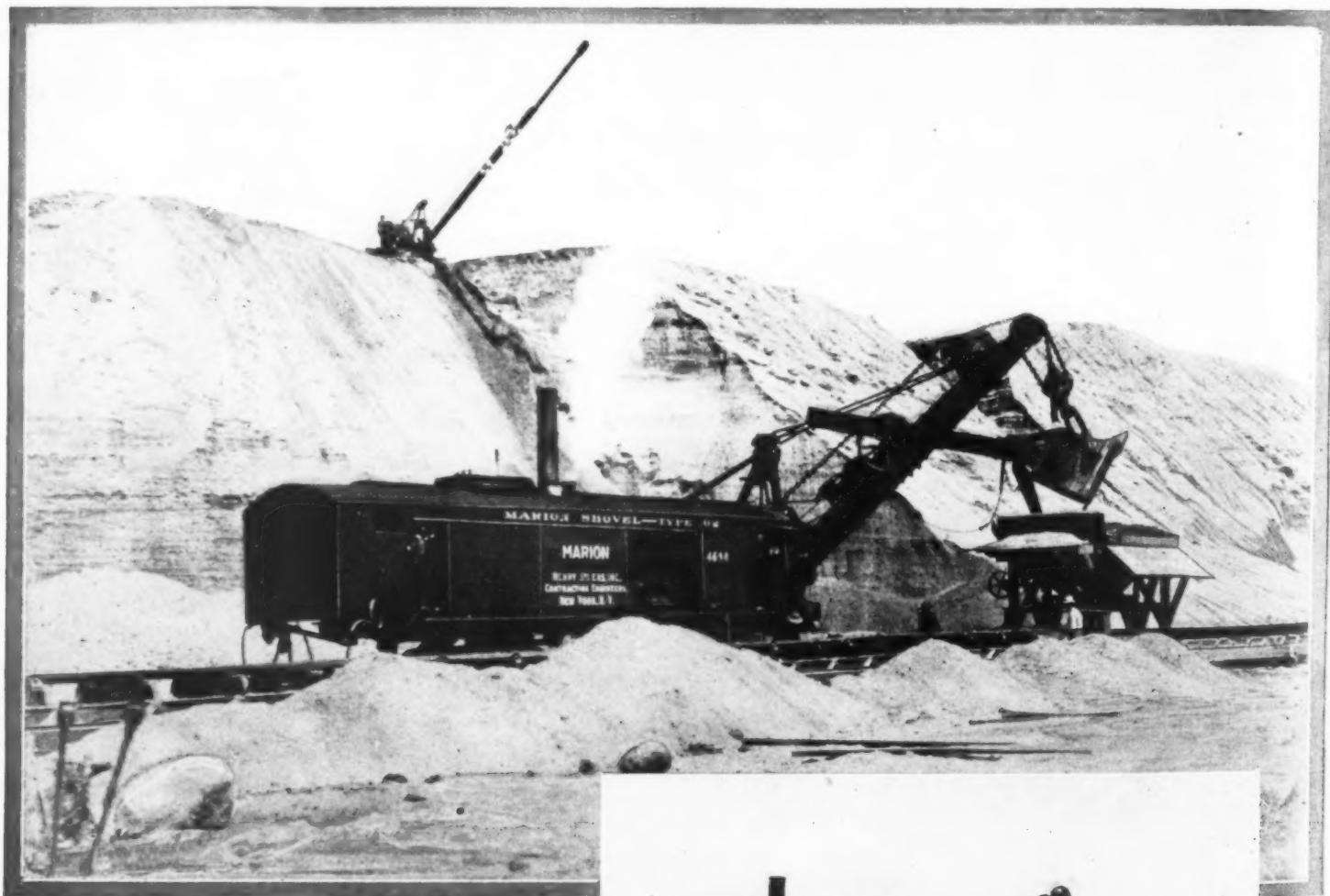
A NUMBER of sand and gravel plants are operated along the shores of Long Island. Great gravel deposits, proximity of a large market, and cheap water transportation make the situation favorable for profitable production of sand and gravel. Some of the plants are equipped to maintain a large daily output.

One of the biggest of these installations is the plant operated by the Sand and Gravel Department of Henry Steers, Inc., of New York City. Its capacity is 4,000 cu.yd. a day. The plant is situated on Northport Bay on the north shore of the island. A great hill of gravel, rising from the water's edge, is part of the property which has an area of approximately 150 acres. The deposit has been worked for 24 years and enough gravel is known to be present to assure 20 years' continuous operation.

The photographs offer a glimpse of the various steps in the process of turning a green hill into concrete aggregates at

the Steers plant. Raw material is excavated by a large steam shovel and is transported on belt conveyors from the bank to the crusher house. From the crusher it get another conveyor ride to the screens, where the gravel is conveyed to storage piles and the sand is sluiced in dewatering tanks. A main conveyor runs in a tunnel beneath the gravel bins for their entire length. Two feeder conveyors run beneath the sand bins and discharge upon the main conveyor. Sand or gravel is spouted from the end of the main conveyor directly into barges, as one of the photographs shows. Tugs deliver the barges to their destination.

A Marion Model 92 steam shovel with a 5-cu.yd. dipper and crawler traction excavates the material from the gravel



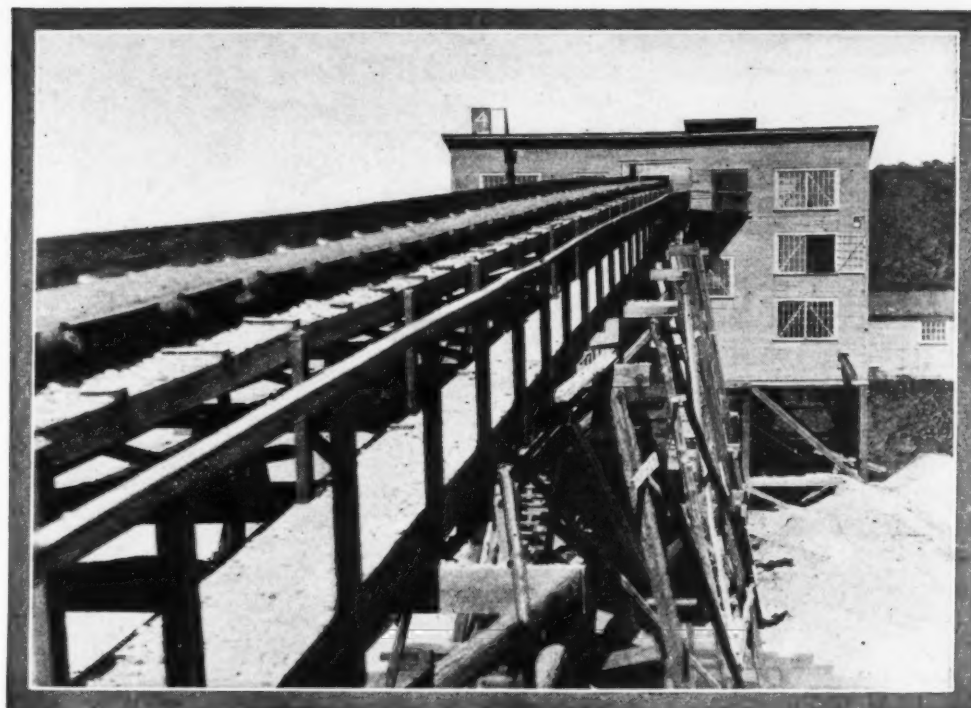
This 5-cu.yd. steam shovel excavates all raw material for the plant. The backfiller slopes the bank to an angle at which the gravel will stand. At right—A small Bucyrus shovel used for stripping is loading the over-burden into trucks



or New York

Material From Bank Equipped Plant

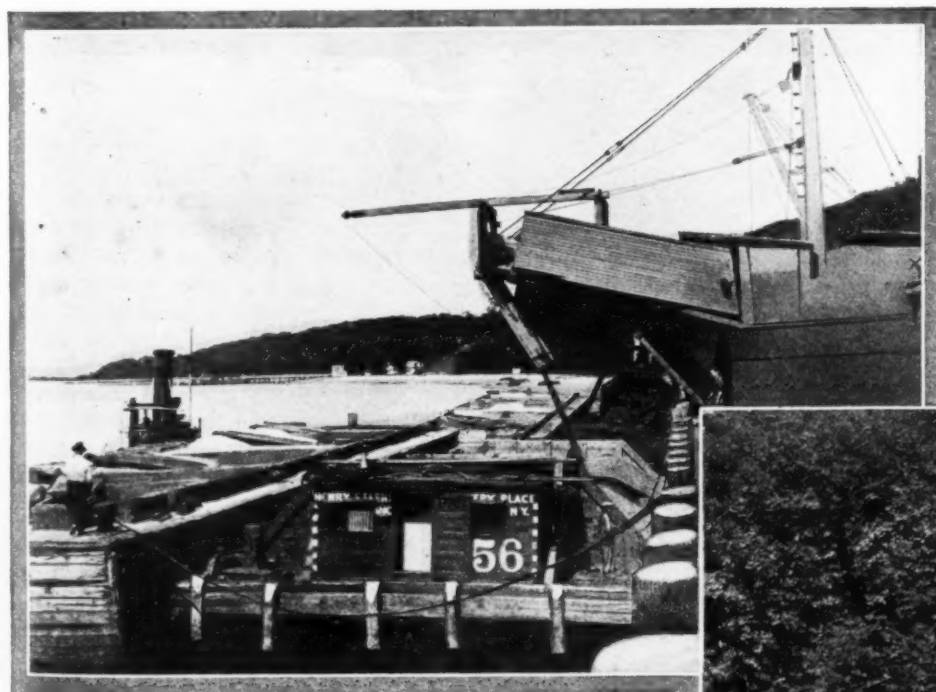
This 200-ft. conveyor transports the material from the crushers to the top story of the screening house. This building contains twelve shaker screens and uses 2,500 gal. of wash water each minute



bank, which has a height of about 70 ft. The Austin back-filler which appears in the pictures is used to slope the bank, and this prevents slides and cave-ins. It performs a necessary service in an economical way. The steam shovel loads a traveling hopper over the belt conveyor. About 1,500 ft.

is the average length of conveyor between the shovel and the crusher house.

Over-size gravel is broken in one of two crushers, an Allis-Chalmers 12-in. gyratory and a Traylor 10-in. finishing crusher. A belt conveyor on a trestle, shown in one of the



The spout at the end of the main conveyor is discharging into the barge at the left. Barges are moved along beneath the spout by a steam winch and cable

The three men at the right are cleaning the chutes through which the sand is sluiced from the screens to the dewatering tanks. Sand is being washed into the nearest tank





The gravel excavation from the top of the bank

photographs, carries the material about 200 ft. across a ravine from the crushers to the screening house. Twelve shaking screens here separate the various sizes of gravel and sand. Grits and coarser gravels are carried to their bins on conveyors. The sand is washed down chutes to the dewatering tanks. About 2,500 gal. of water a minute is used in the screening house.

The main conveyor running underneath the gravel bins is about 250 ft. long. Each of the feeder conveyors for sand, at right angles to the main conveyor, is about 100 ft. long. Many different makes of conveyor equipment are being used around the plant in an effort to determine the most serviceable kinds. It is too early yet for any definite results of the test to have been obtained. At the end of four years, some

knowledge of the wearing qualities of various belts will have been gained.

A steam winch is used to move the barges under the spout. Conveyors, crushers, screens and pumps are operated with electric power. About eighteen motors, of from 10 to 150 hp., drive this equipment. A transformer station reduces 2,300 volt a.c. power to 220 volt a.c. A machine shop and a carpenter shop are maintained at the plant in addition to boiler house, pump house, storage shed and office building.

The sand and gravel are shipped to New York and to the cities across Long Island Sound, such as Bridgeport, New Haven, and New London, Conn. J. R. Steers, Jr., superintendent, is in charge of the operation of the plant. He is assisted by James McArdle.

November Photographic Contest

Three Prizes for Photographs
of Construction Work

First Prize \$25.00—Second Prize \$15.00—Third Prize \$10.00

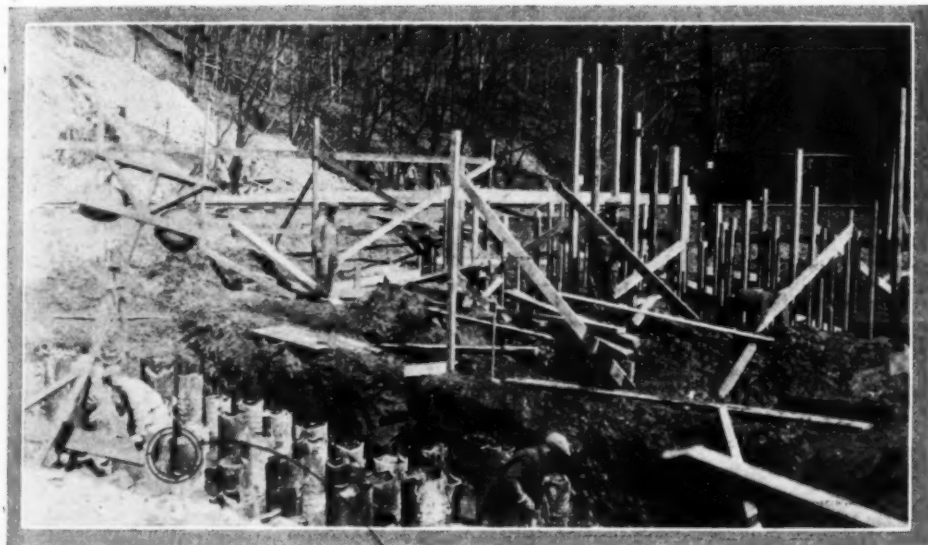
Entries close Monday, October 10

Step-by-Step Field Methods—

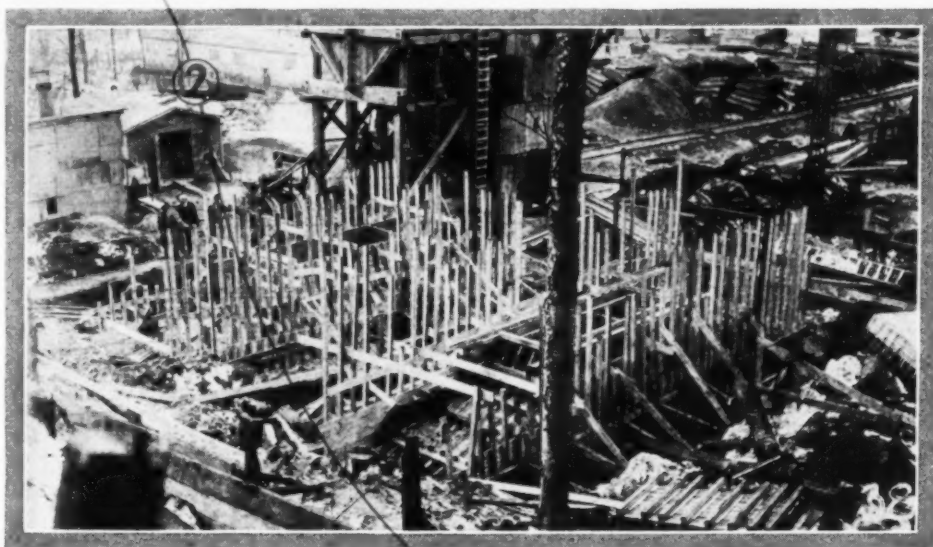
Building a Bridge Pier at Toronto

Follow the Red Line

A new viaduct, costing \$1,000,000, is being constructed to connect the municipalities of East York and Leaside, just outside the city of Toronto, Ontario. The valley of the Don will be crossed by a bridge 1,303 ft. long, 56 ft. wide inside of handrails, and 135 ft. above low water level. The deck steel trusses are supported by 10 concrete piers. Eight of these are tall structures averaging over 108 ft. from base to top of coping.

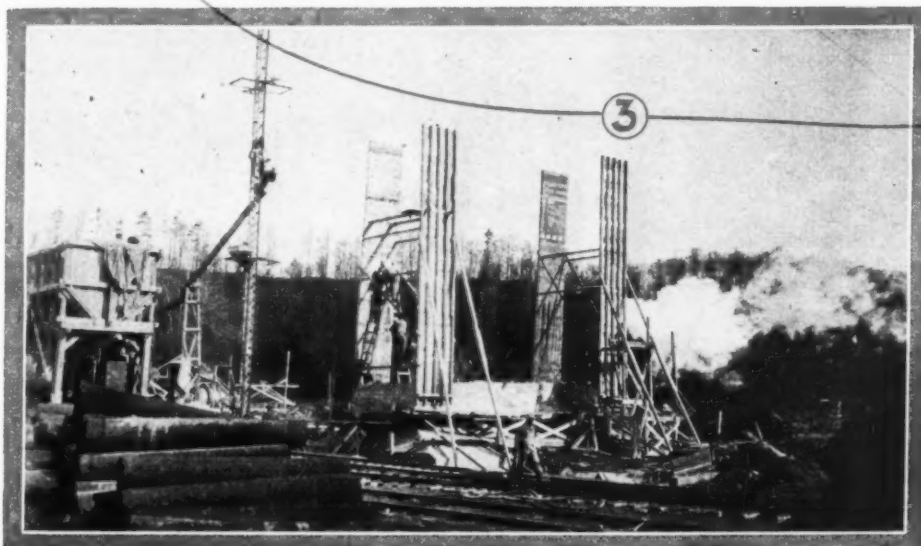


1. The Raymond concrete piles for the pier foundation are ready to be cut off in half. The footing and the forms have been started in the other half

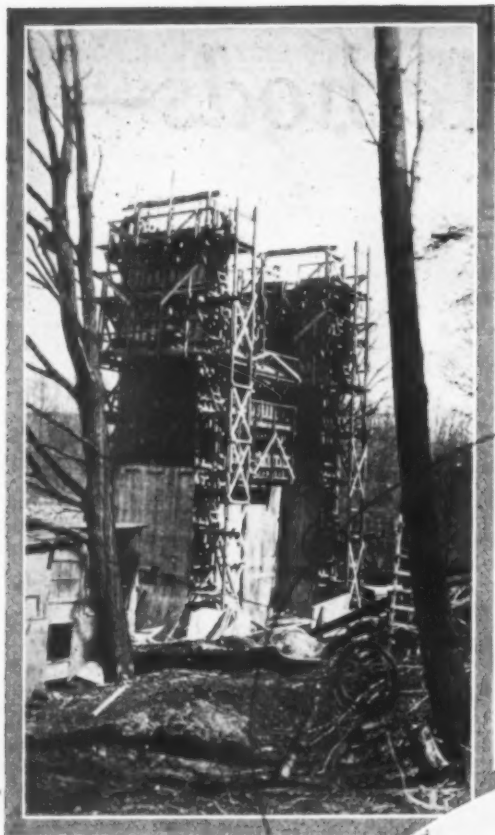


2. Forms for both footings are nearly complete. The traveling material bin and the concrete mixer are ready in the background

3. Footings have been poured and stripped. The first of the pier forms is being set up

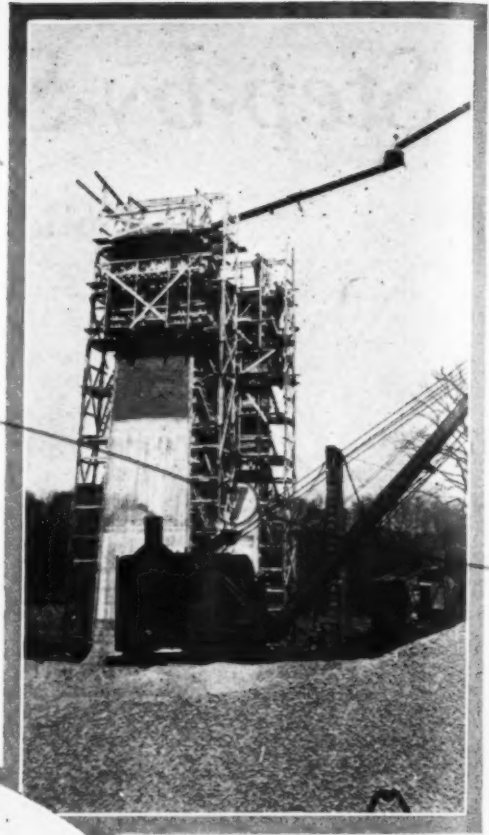


Follow the Red Line

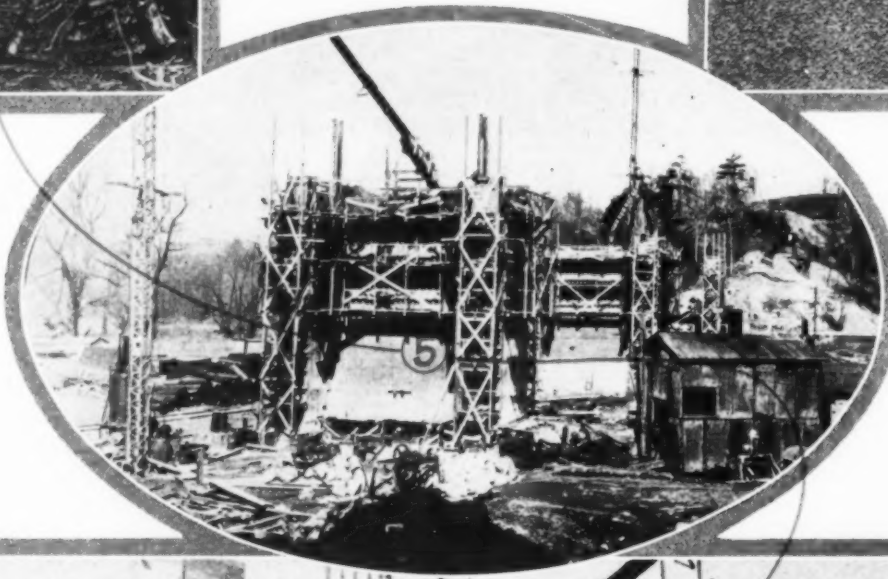


6. The forms are being moved up for the third lift. The form for one side of the curtain wall remains to be hoisted

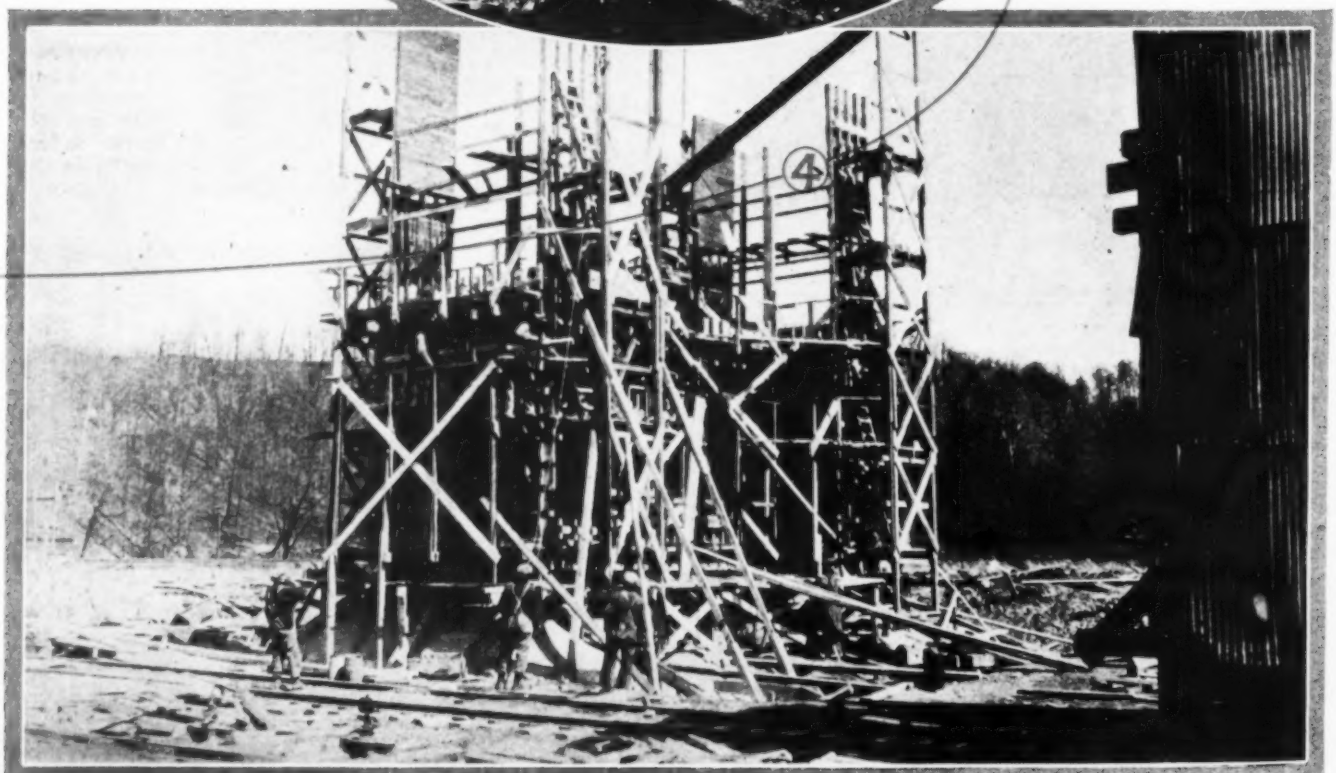
7. Preparing for the fourth lift. The green concrete is much darker than that previously poured



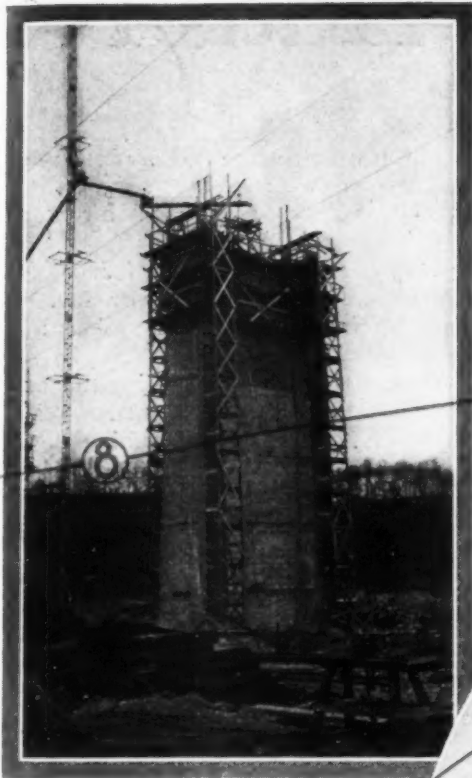
5. Forms have been moved up and the second lift has been concreted



4. All of the forms are in place and the first lift (13 ft.) of concrete has been poured. The forms are ready to be moved up

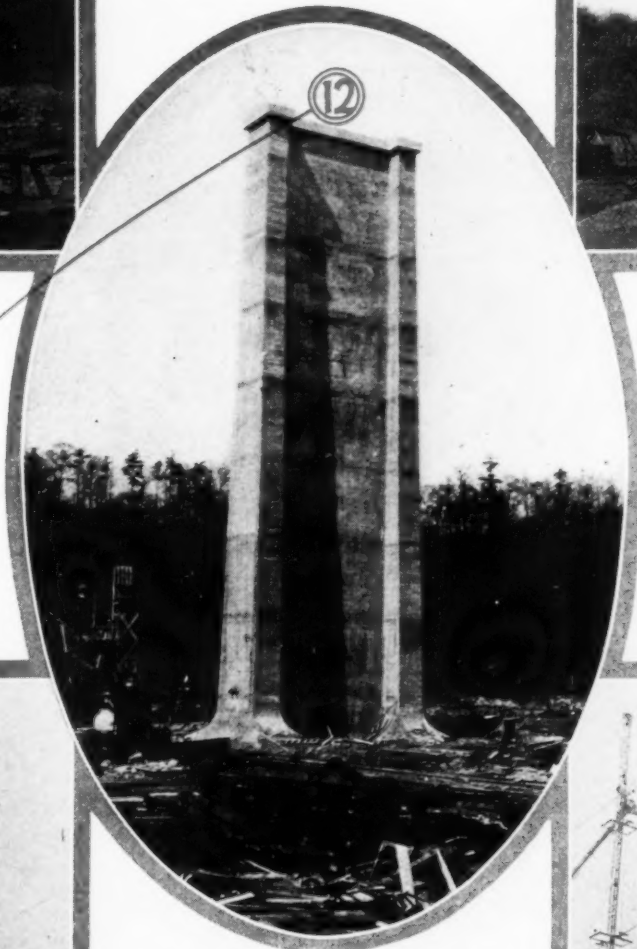
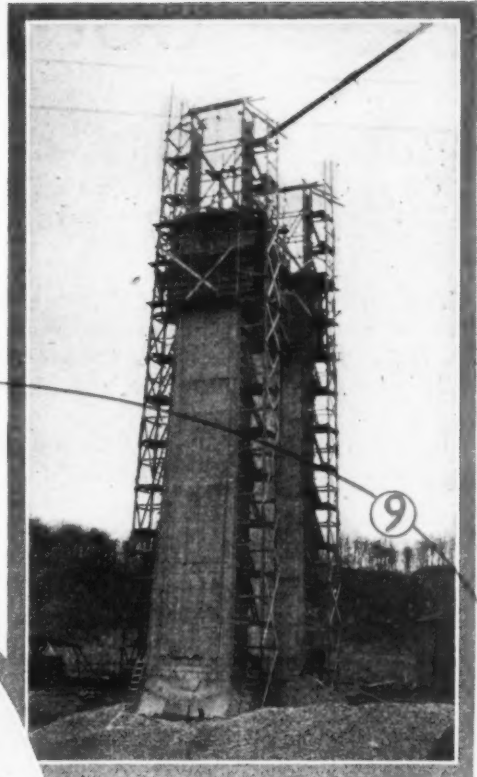


Follow the Red Line



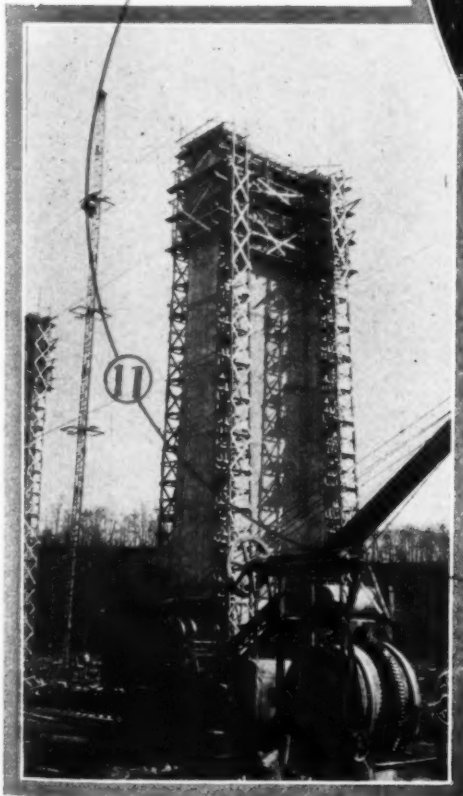
8. The fifth lift has been concreted. One of the two 150-ft. Ransome masts which were used for elevating the concrete is shown

9. Part of the forms for the sixth lift have been erected and the tackles are in place for raising the nearest section of sliding forms



11. Separate forms for the eighth lift and for the coping have been erected and the concrete poured

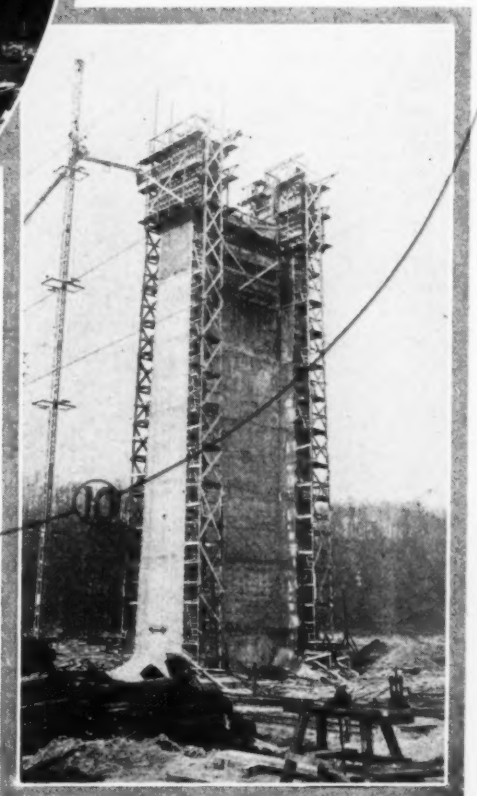
10. Outer forms have been raised for the seventh lift and the middle forms go up next



12. The completed pier. No rubbing is to be done until after the steel is erected and the deck concreted

Four piers were erected at a time and a four day schedule was followed. This allowed the forms to remain undisturbed for two days. Raising the sliding forms took about two hours, placing and tightening bolts and wires occupied slightly over a day and the concreting took hardly five hours.

The bridge was designed by Frank Barber, consulting engineer, and is being built by Roger Miller & Sons, Ltd., contractors. William Snaith is resident engineer.



Southern City Adds New U

IN ORDER to provide an adequate supply of water, the city of Chester, S. C., has just finished the construction of a new storage reservoir, a filter plant and a clear water reservoir. The construction of these units was handled by Tucker & Laxton, Inc., contractors of Charlotte, N. C.

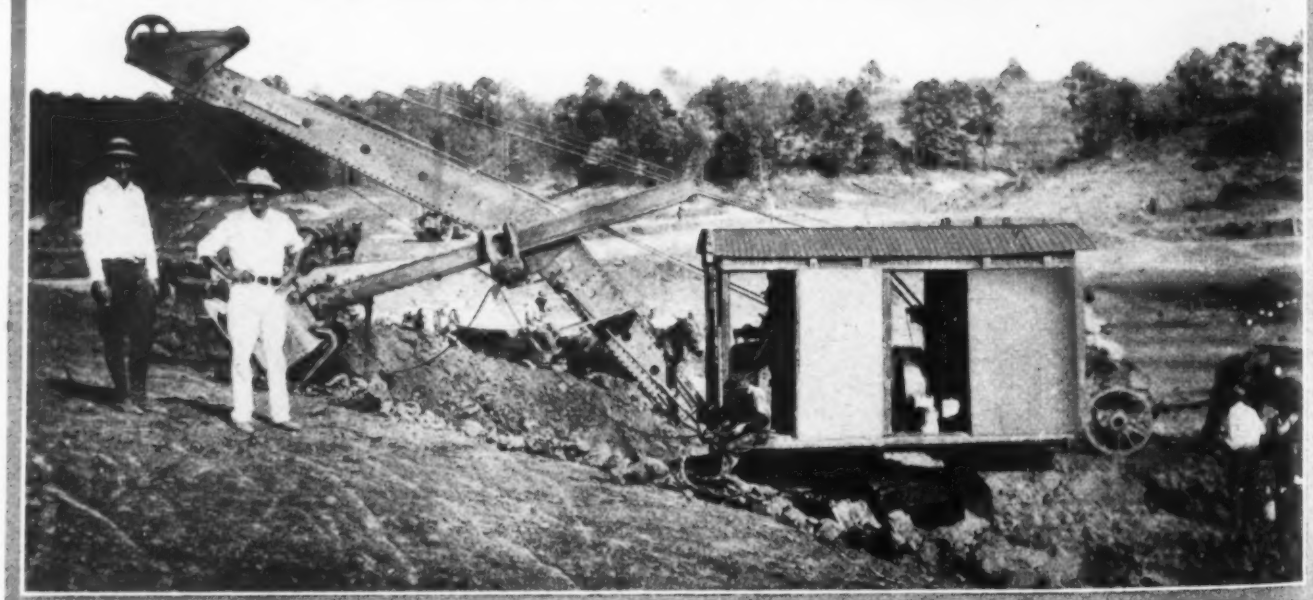
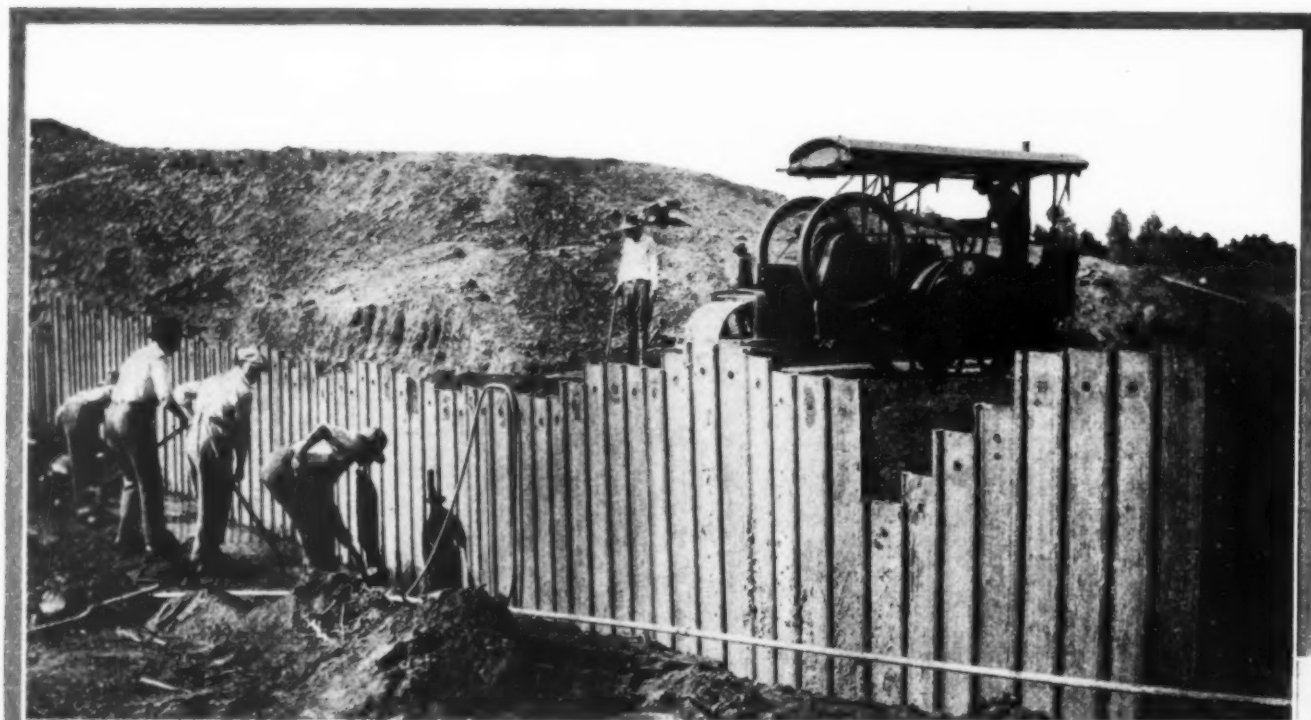
The dam is built of earth with a steel sheet piling core across the stream and a reinforced concrete spillway. It is 700 ft. long and 36 ft. high, and the spillway is 157 ft. wide. A 24-in. pipe was placed through the dam and supplies water to the filter plant.

In the construction of the dam the piling was driven to solid rock with a steam hammer. A Bucyrus oil shovel did

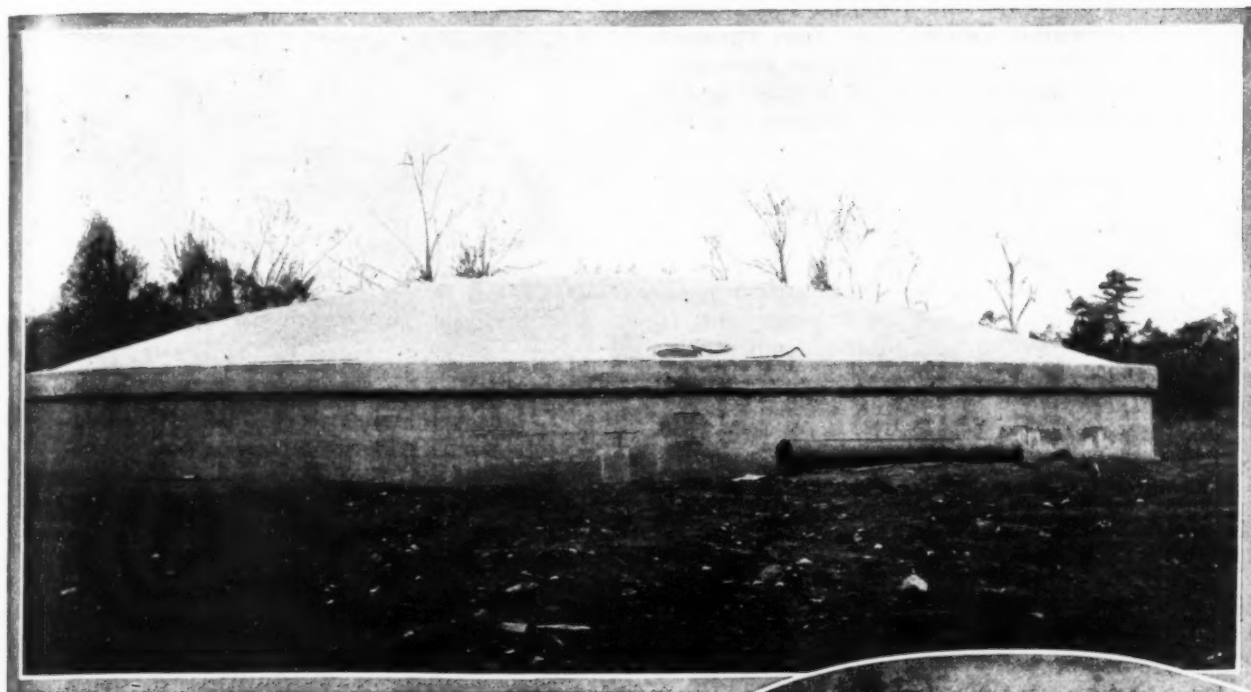
the excavating, and an Austin 3-wheel roller was used to compress the dam. The clear water reservoir has an inside diameter of 70 ft. and is covered by a reinforced concrete roof.

The new storage reservoir has a capacity of 550,000,000 gal., and the filter can handle 2,000,000 gal. per day. The clear water well holds 500,000 gal. These additions to the supply became necessary when the flow of Sandy River proved inadequate. The photographs illustrating this article were sent to *Construction Methods* by L. J. Jordan, resident engineer on the job for W. H. Booker, consulting engineer of Charlotte, N. C., who is the designer.

At work on the earth dam. The steel sheet piling core wall is shown in the upper picture, the Austin roller used to compress the dam in the background. The Bucyrus shovel in the lower photograph did all the excavating

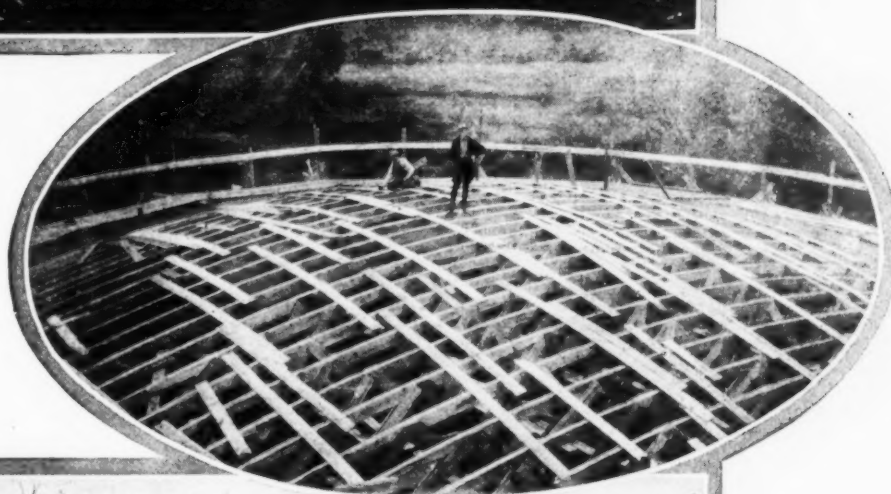


Units to Water System

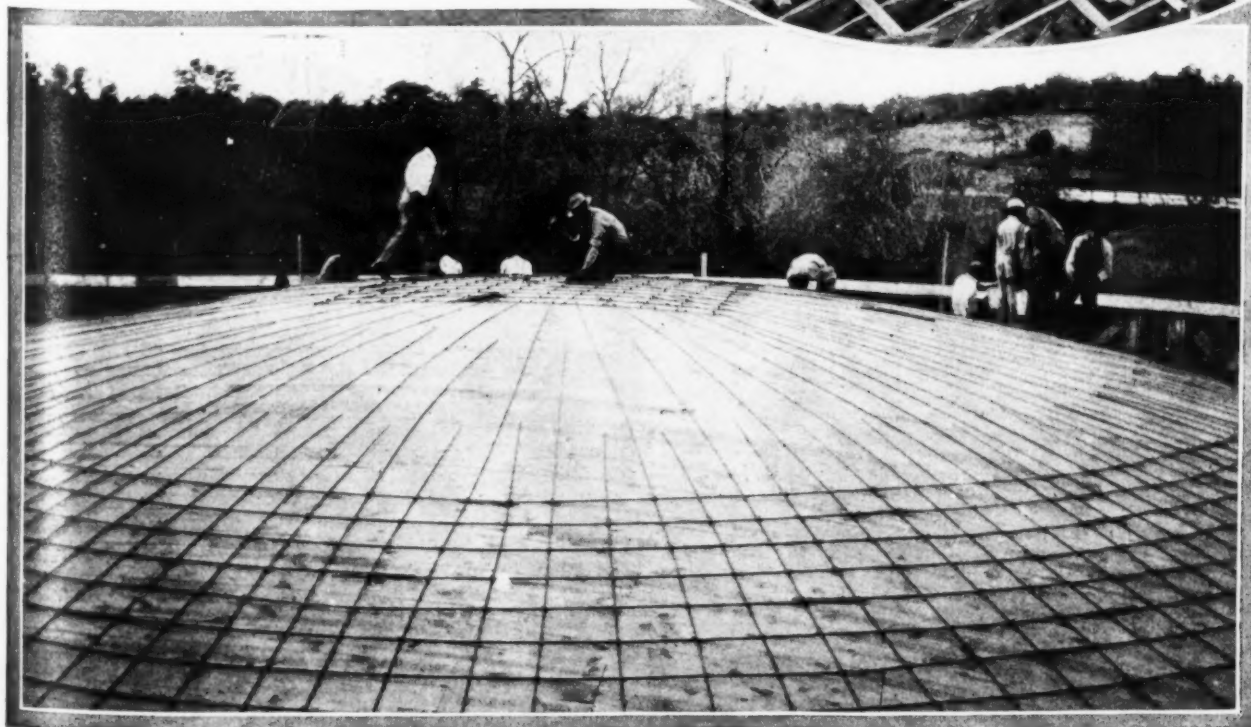


The clear water reservoir as it looked when completed

Wooden trusses were used to support the concrete roof during construction



Placing steel reinforcement for concrete roof



A Duplex Concrete Plant

A CONCRETING plant equipped with two mixers and at the same time so compactly arranged that it interfered very little with traffic on a busy street was used in the construction of the Russ Building in San Francisco, completed recently. This plant was built and operated by the Dinwiddie Construction Company. E. M. Walters was the superintendent.

As may be seen from the photographs, ramps were built which enabled the trucks to dump into the bins above the mixers without interfering with street traffic. The cement was stored in sheds under these ramps.

The Russ Building is a steel and concrete structure on Montgomery Street between Pine and Bush Streets. It is 31 stories in height with a basement and sub-basement, the total height of the building being 447 ft. The ground floor dimensions are 275 ft. by 160 ft. The structure was designed by George W. Kelham, and the engineer was H. V. Brunnier. The sub-contractors for the excavation were Granfield, Farrar & Carlin.



The duplex concreting plant may be seen in the center photograph. Two mixers were operated simultaneously supplying concrete to two elevator buckets. The picture in the circle at the left shows the way in which the aggregates were hauled in trucks up a ramp to a point over the mixers. The big structure, which cost about \$4,000,000, is shown in the oval at the top of the page

Remaking a Highway

Use of Old Pavement as a Base on Road Near Cleveland Results in Concrete Nearly Three Feet Thick on Curves

GREATLY increased traffic has made necessary the reconstruction of Mayfield Road, one of the main highways east of Cleveland. Cuyahoga County is replacing an old narrow pavement with two slabs of concrete, each 18 ft. wide. Between these two strips a space is left 22 ft. in width which may eventually be occupied by car tracks. Included in the section of road being replaced are the Gates Mill Hills, and on these hills a single slab of concrete 24 ft. wide has been laid. The whole job consists of about 6 miles of the double strip paving and about $1\frac{3}{4}$ miles of the 24-ft. slab on the hills.

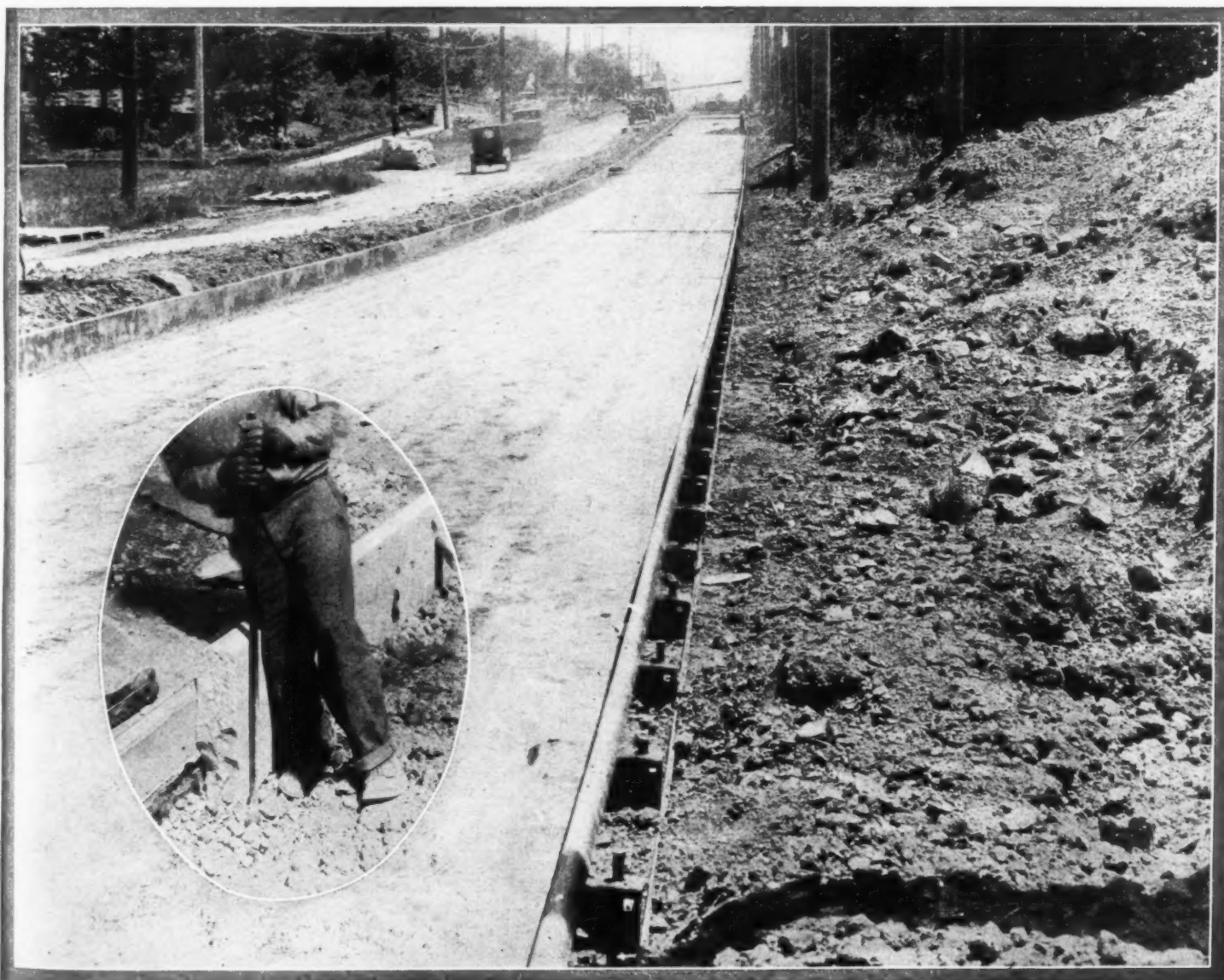
The Dorsey Construction Company of Findlay, Ohio, is handling the work and has had two paving outfits on the job most of the time. Some unusual methods have been used in the work. On the 6-mile section where the two 18-ft. strips are being laid, a Foote paver is making a good record. This paver is operated from the unpaved strip in the middle of

the road and is equipped with a long boom specially made for handling the concrete. This arrangement makes it possible to keep both paver and trucks off the subgrade.

The 18-ft. concrete slabs are 13 in. thick at the inner edge and 10 in. at the outer edge. In finishing them two Lake-wood screeds are being used, the first screed running immediately behind the mixer striking off the concrete for the reinforcing, and the second a few yards behind finishing the surface. A double system of reinforcing is used in some places. Where the subgrade is poor or low spots have to be crossed, $\frac{1}{2}$ -in. round bars are spaced on 12-in. centers. Mesh reinforcing consisting of 56-lb. mesh gives the pavement additional strength. Along each edge $\frac{3}{4}$ -in. bars are placed.

A sandstone curb is provided at the outer edge of the slab, and this curb is placed after the slab has been finished. Long hauls are necessary in getting the aggregates to the

Forms were set with remarkable accuracy. In the insert the setting of the sandstone curb is shown





Great care was taken in preparing the subgrade. A Lakewood subgrader was used. At the left, Ray Anspaugh, general superintendent, with his hands in his pockets, is listening to a report from E. J. Hummon, in charge of one of the paving outfits



mixer as the most available site for a material yard was several miles away. Cement is stored along the side of the road off the subgrade and water is supplied from the street hydrants. A 1:2:3 mix is used on this section of the work. The coarse aggregate is slag.

On the Gates Mill Hills section, where the grade is from

The iron bars used for reinforcing the lower part of the slab may be seen in the foreground. The two Lakewood screeds also are in evidence



8 to 10.8 per cent, some difficult problems have been encountered. A very dry mix was necessary in order to prevent the concrete from slumping. Special effort was made to keep the consistency of the concrete uniform, and as a result of these precautions plus intelligent use of the finishing machine, a remarkably smooth surface has been obtained.

On the hills the old pavement was allowed to remain as a base for the new slab. This old pavement had not been banked on the turns, so in laying the new pavement, super-elevation for the curves was obtained by building up with concrete on the outside of the slab. As a result, at some points the new concrete slab is nearly 3 ft. thick.

A granite curb was used on these sections. It was put in place first, and in finishing the slab, the finishing machine ran on the forms on one side and the granite curb on the other. Specially designed angles were provided to form a track for the machine on the curb and to serve as an anchor which held the curb in place while the machine was operating. The machine also was arranged so that it could screed and tamp below the top of the curb.

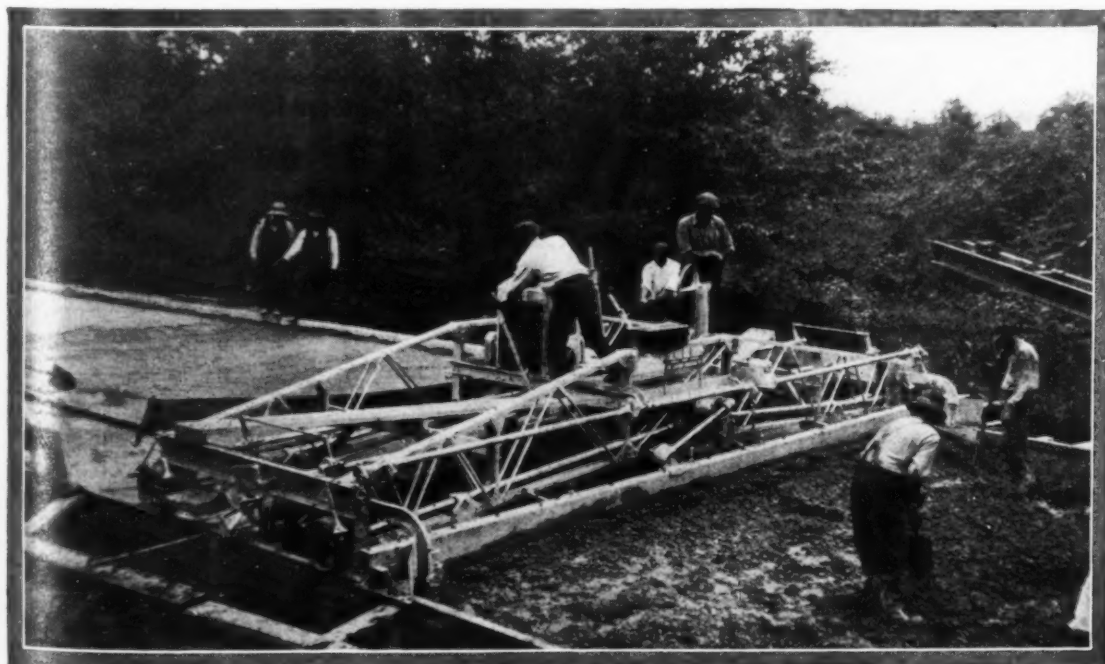
The unusual thickness of the slab renders it impossible to make a fair comparison with other jobs so far as the speed of the work is concerned. The job has been going forward, however, at an even pace in spite of the unusual nature of the work. Except on the hill section it has been possible to keep the Mayfield Road open to traffic.

Ray Anspaugh is general superintendent for the Dorsey Construction Company. R. S. Brindell is division engineer for the state. James McLeary is the chief road engineer for Cuyahoga County, and Daniel Davis is engineer and inspector for the state on the work in this county.

The work on Mayfield Road is only one unit of the extensive highway improvements under way or planned in the near future in Cuyahoga County. The great growth of the city of Cleveland has created traffic conditions which have overloaded most of the highways in the outlying sections of the county, and steps are being taken to rebuild many of the roads which either are too narrow for the present traffic, or which have broken down because of the fact that they have carried far more traffic than was contemplated when they were designed and built. Surveys have been made by the county officials, the State Highway Department and by the U. S. Bureau of Public Roads which will result in a comprehensive plan for improvement along modern lines of the highways connecting Cleveland with other parts of the state.



Beyond the mixer may be seen the freshly laid concrete which at this point is more than 2 ft. thick



At this point, one of the widened curves, the finisher ran on a false form

Six Thousand Pilesfo

One of the two steel pile drivers equipped with Vulcan steam hammer and two jets which drove the long plumb piles



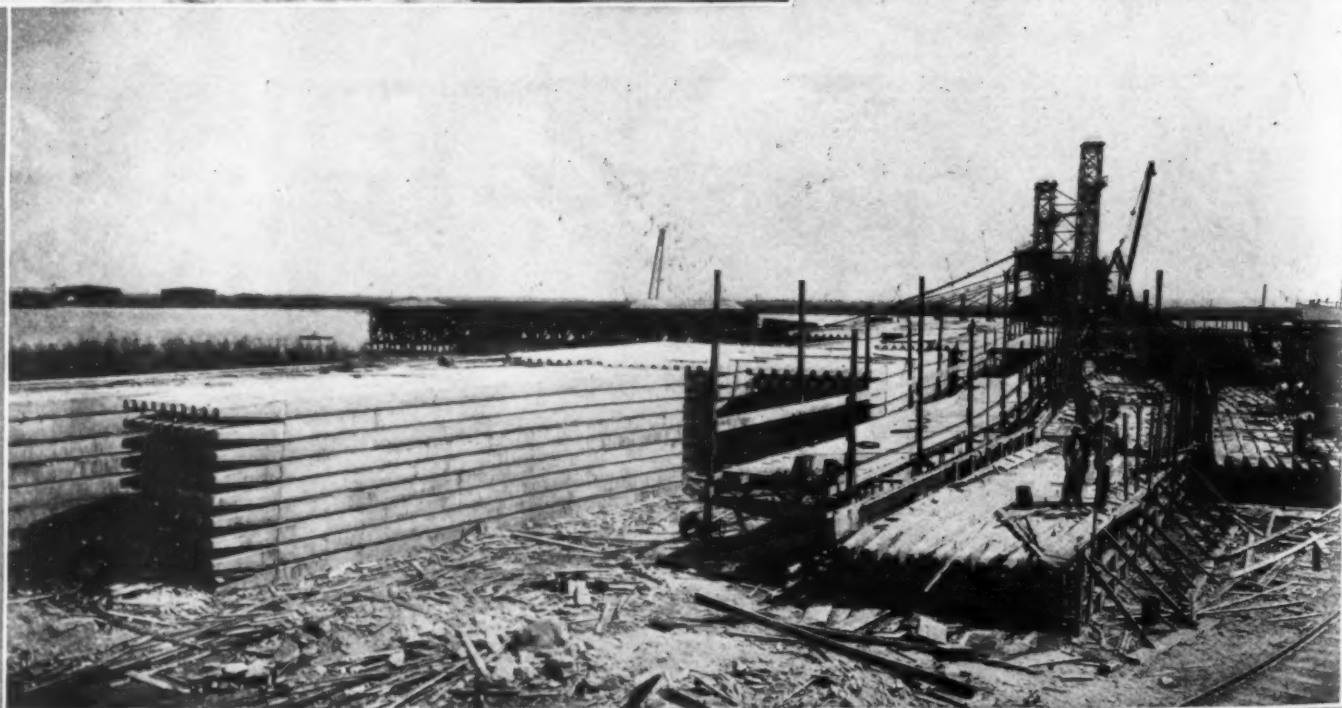
IN BUILDING two long piers for the Alabama State Docks' Commission along the west bank of the Mobile River at Mobile, Ala., Doullutt & Ewin, Inc., New Orleans, were faced by the problem of casting and driving 6,000 piles from 45 to 60 ft. long. The piles contained about 21,000 cu.yd. of concrete. In addition, 44,000 cu.yd. were required for superstructures. The piers are about 1,600 ft. long. Pier 2 is 560 ft. wide but Pier 1 is irregular in shape.

A large capacity concrete mixing plant was erected along the river bank. Two 1-cu.yd. mixers, a Koehring operated by steam and a Smith by electric power, took care of the concrete output. The piles were cast and stored nearby.

Standard-gage track connected the mixing plant and storage yard with all parts of the piers. In driving, the piles were hammered very little, but were jetted down with two 3-in. jets.

Concrete for the superstructures was transported on flat cars in 8-cu.yd. hoppers. The longest haul was a little more than one mile. Locomotive cranes handled the hoppers. At the scene of operations the concrete was dumped into sta-

Casting yard with concrete plant in background. In the center background are the bins into which aggregates were loaded directly from barges



Plans for New Pier at Mobile

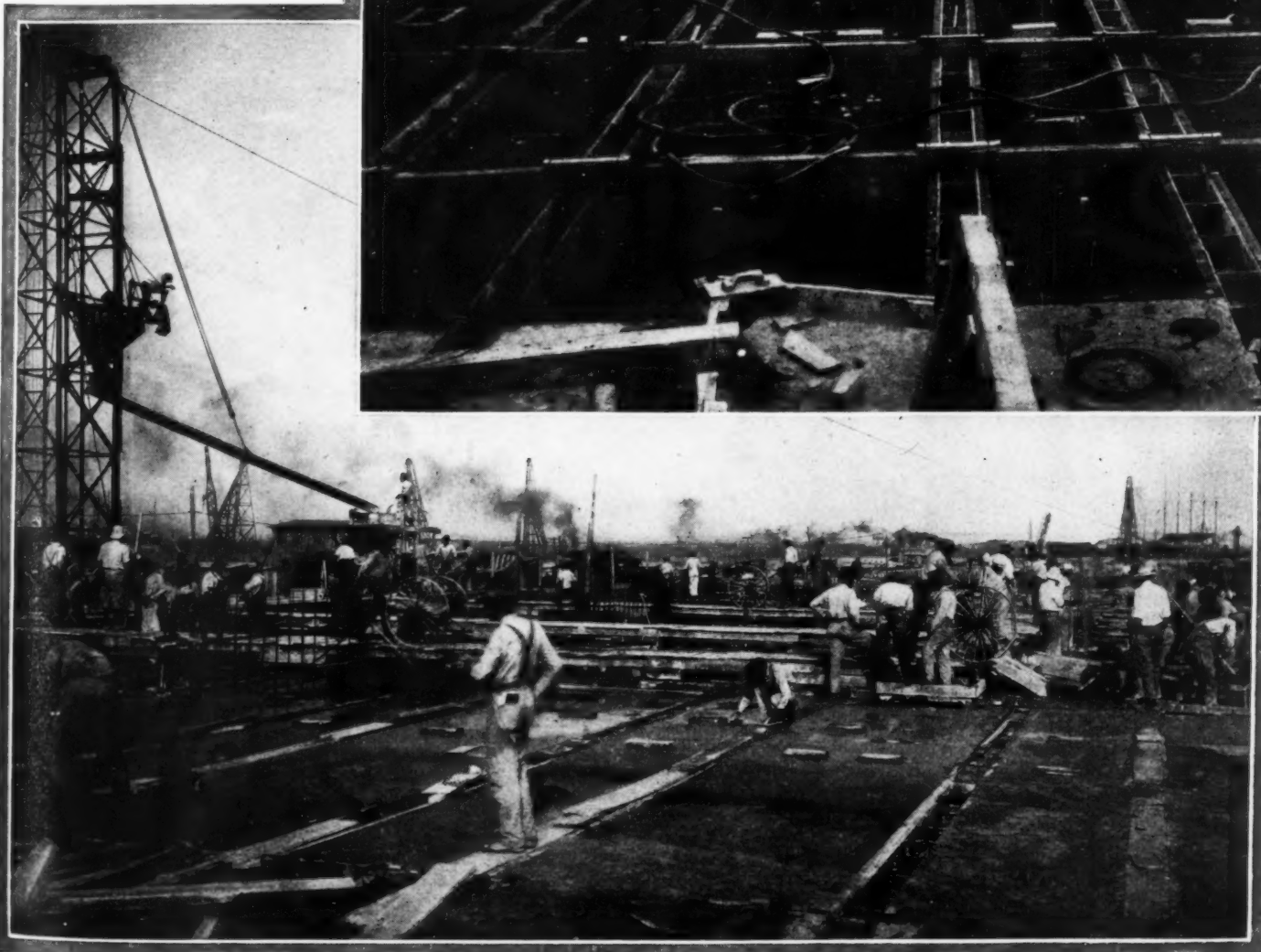
tionary hoppers, from which it was distributed in buggies. The construction of the docks is under the supervision of Gen. William L. Sibert, Chairman and Chief Engineer of the

Alabama State Docks' Commission. J. C. Cummings is Assistant Chief Engineer. F. Brown is superintending operations for Doullutt & Ewin, Inc.

At right—Pouring the deck of Pier 2, showing reinforcing in place



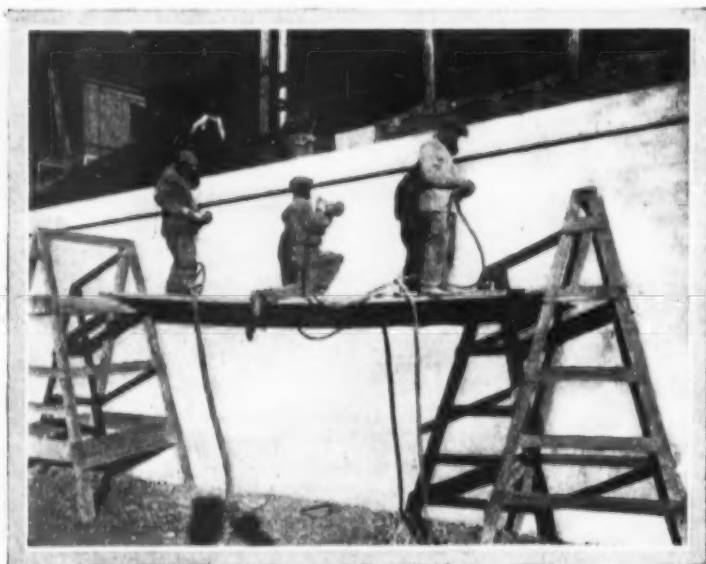
Below — A concrete distributing tower was used on this section of the work



NEW EQUIPMENT ON THE JOB

For Surfacing Concrete

Another tool has been added to the Ingersoll-Rand Company's long list of machines operated by compressed air. The newcomer is a portable concrete surfacing machine which



is used for smoothing concrete surfaces and removing form marks. It can be used on either green or old concrete. The machine is equipped with a ring-shaped grinding wheel which utilizes the flat face of the wheel.

Increasing Conveyor Efficiency



In connection with conveyor equipment, the Link-Belt Company of Chicago is now manufacturing a new anti-fric-

tion belt conveyor idler and return rolls. One of the features of the idler is a labyrinth grease seal mounted in a grease cap which also serves as an outboard reservoir and lubricates the bearing on the outside as well as on the inside. This is especially useful when the roll is on an incline. The grease cup in turn is protected by a deflector plate which deflects dirt, dust, grit or any foreign material away from the bearings and grease seal and will not permit the washing of the grease away from the labyrinth.

The rolls are mounted on a self-cleaning "T" base, and all rolls are interchangeable and so can be used in any of the three positions. The entire frame is riveted and there are no bolts or nuts to work loose.

The belt shown in the photograph is 30 in. wide and is equipped with the new anti-friction idler. It is used for handling sand and gravel in the plant of a supplier of construction materials.

A Brick Cleaning Machine

A machine which cleans brick of all kinds has been placed on the market by the Rotor Air Tool Company of Cleveland. It consists of a main table below which is mounted a main



shaft running in Hyatt roller bearings. Two special cutting heads containing the cutting members are mounted on this shaft. The cutters can be easily removed and changed. The two cutting heads project slightly through slots in the table, and the table is hinged at the back with a positive screw adjustment which makes it possible to raise or lower the forward part. The bricks are handled in exactly the same manner that a piece of wood is planed or shaped on a wood joiner. The entire machine is mounted on a 4-wheel truck which makes it easy to transport it from one place to another.

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SHIPPER shaft in center of the boom. Large circular steel bearings—bronze bushings—pinion and sprocket—all driven by a roller chain running in guides—these few oversize, extra-strong parts comprise the entire crowding mechanism of the Lorain 60 and 75 Boom.

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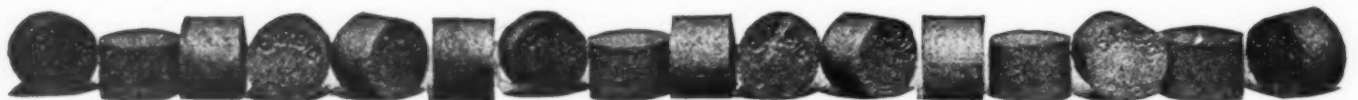
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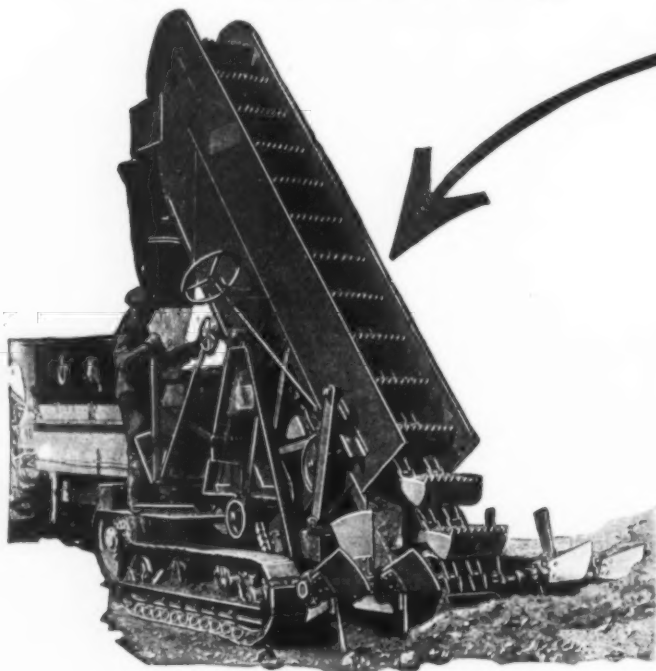
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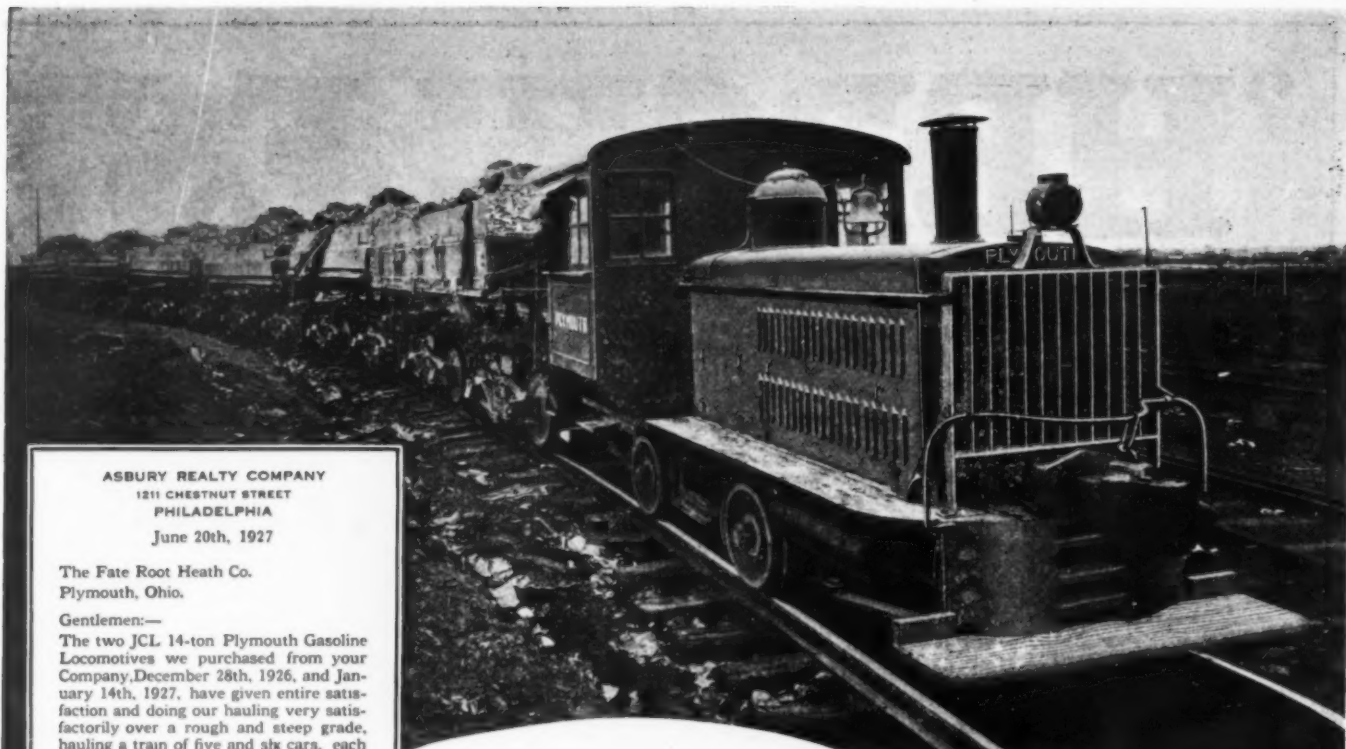
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June 20th, 1927

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Yours truly,
Asbury Realty Co.
Philip C. Eisele Treas.



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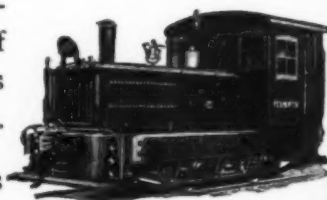
ASBURY REALTY COMPANY IS USING TWO PLYMOUTH

each pulling a train of six cars carrying twenty yards per car. The load per car is 17,000 pounds and the weight of each car is 31,000 pounds, making the train a dead load of 144 tons.

From the scow at the wharf, where the rubbish is received from the city, to the dump is one and one-half miles. These two 14-ton Plymouths are hauling this load day in and day out, up a rough 2 per cent grade.

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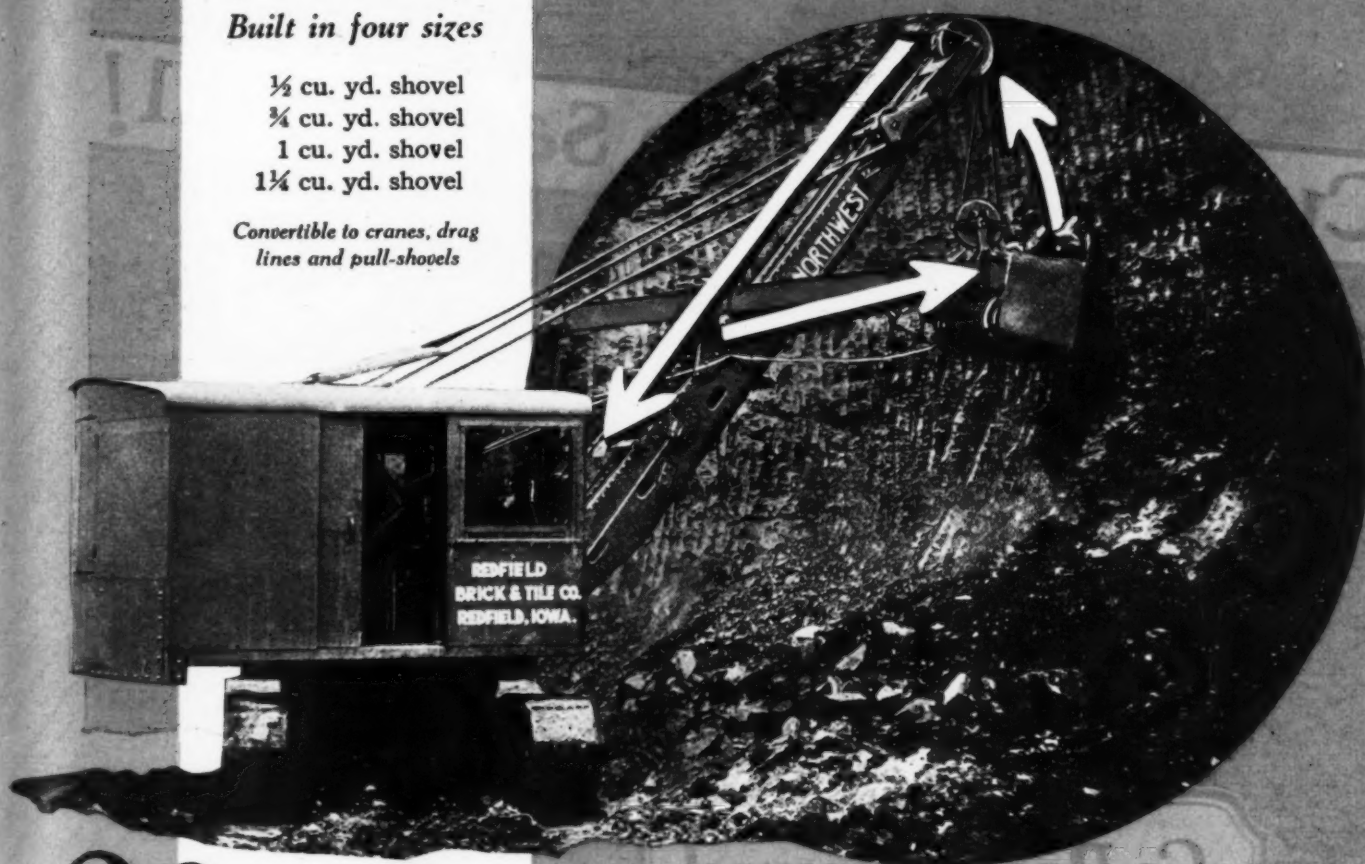
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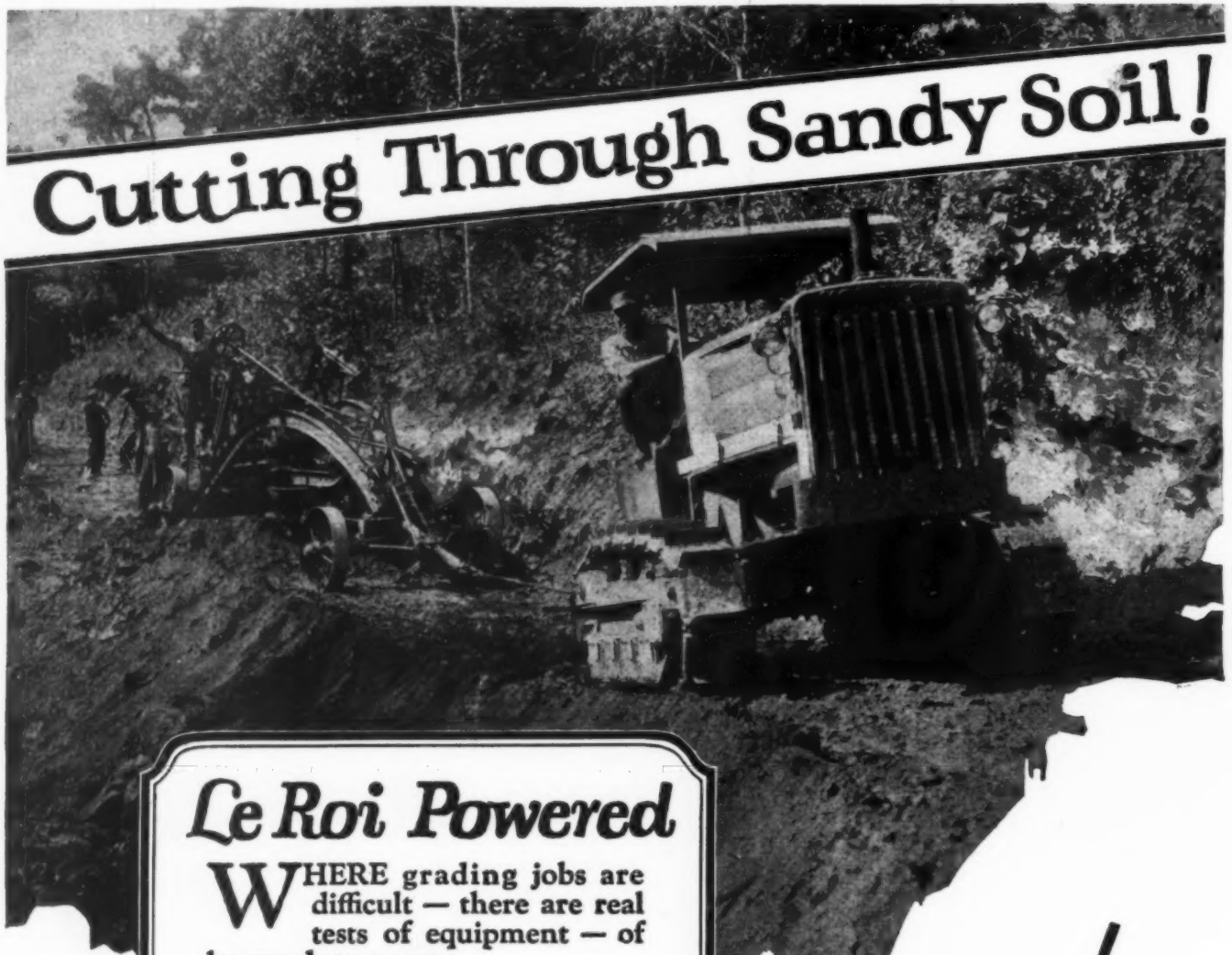
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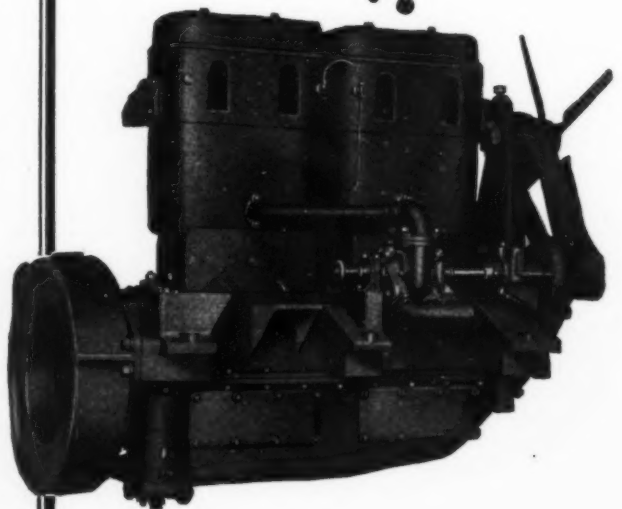
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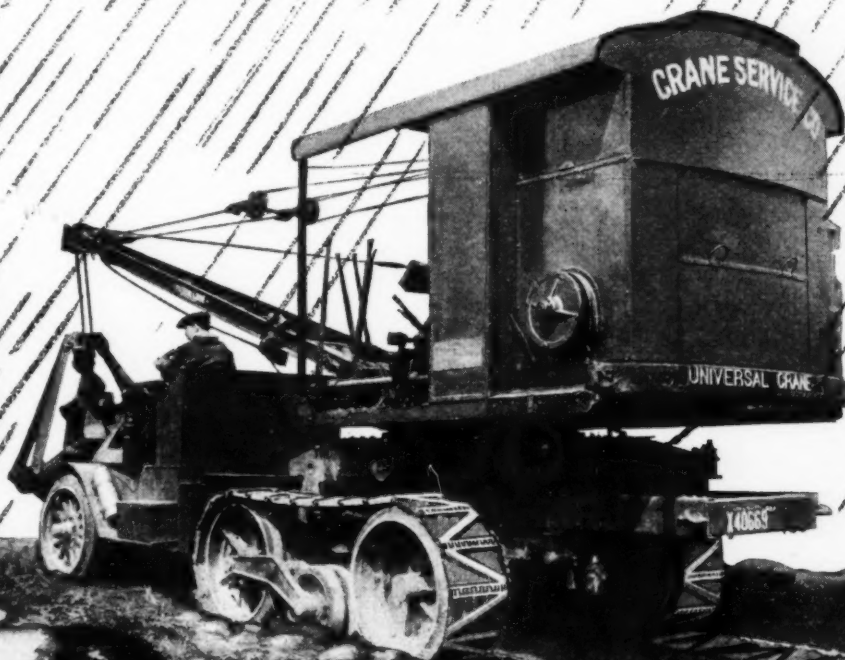
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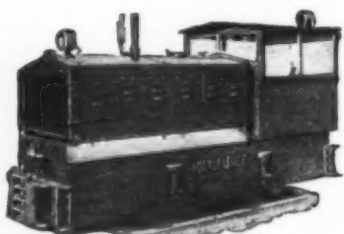
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National Air Compressors are built in 110, 160, 240 and 330 Cu. Ft. sizes; standard mountings.

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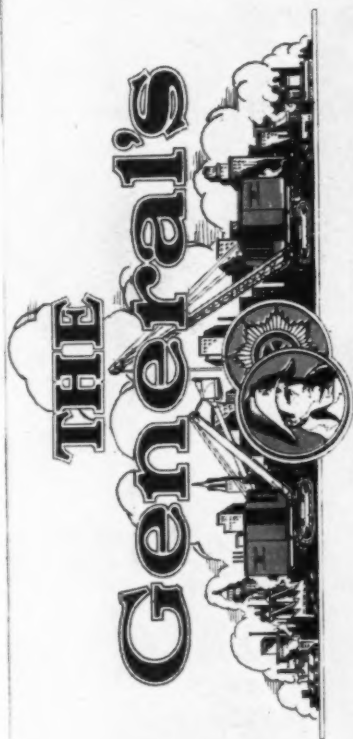
NATIONAL BRAKE & ELECTRIC COMPANY
Division of Westinghouse Air Brake Company
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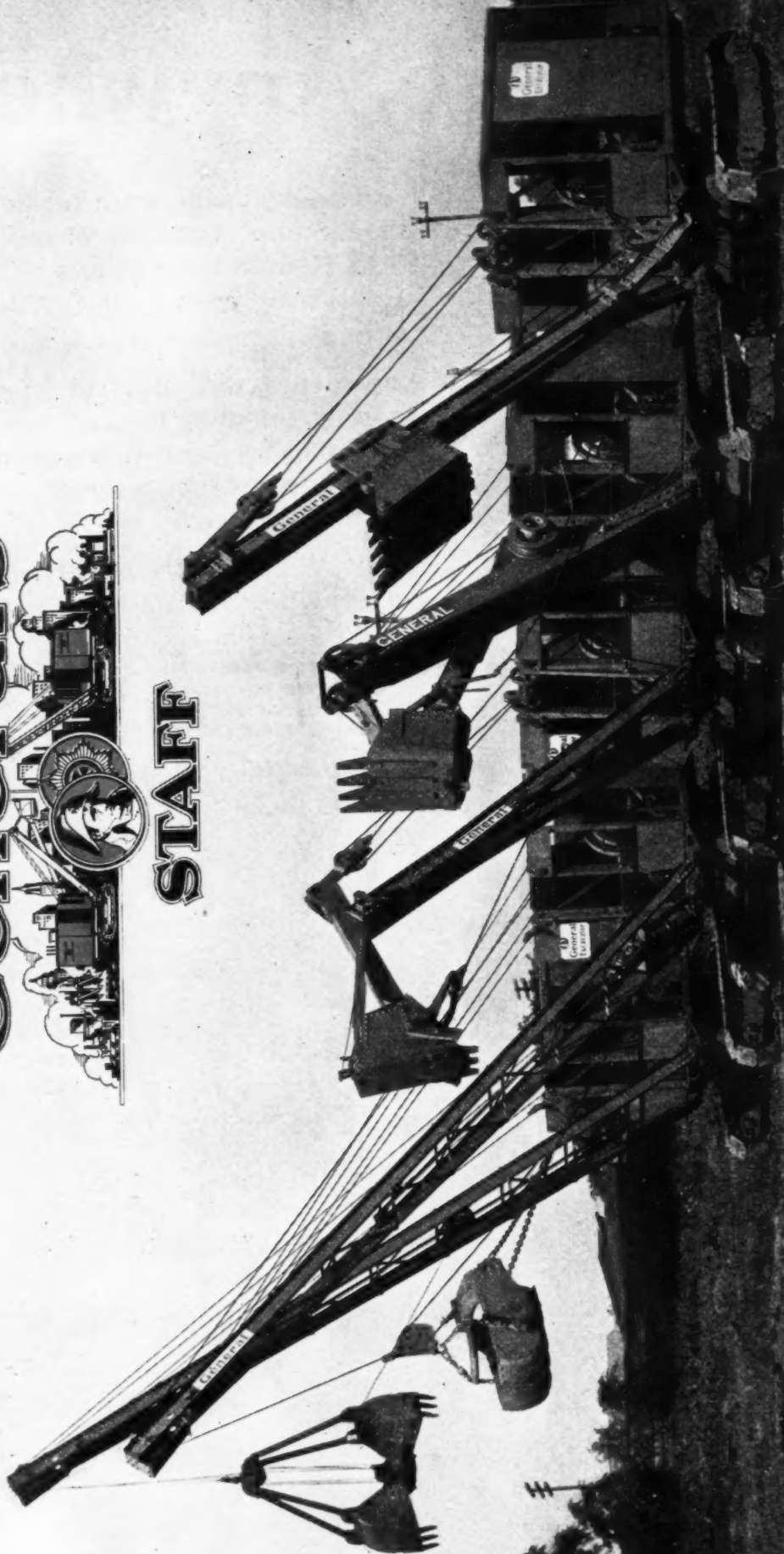
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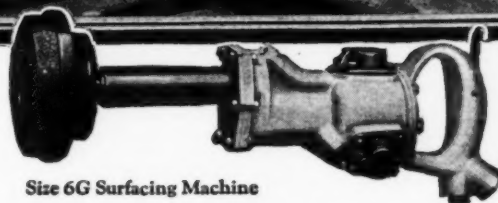
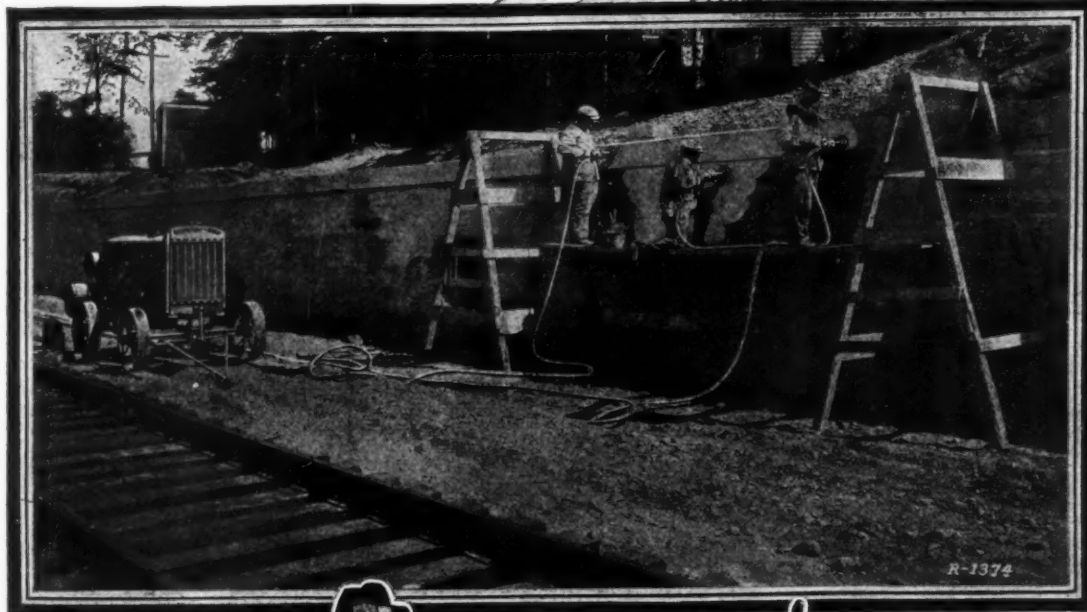
Ingersoll-Rand Company has developed a new lightweight air tool for use in finishing the surfaces of concrete and stone.

This machine (known as Size 6G) will quickly and easily remove all form marks from concrete and prepare the surface for a flat finish or for painting. It is ideal for cleaning, smoothing, and finishing concrete walls, bridges, and buildings. It will surface either "green" or old concrete.

It saves time and labor and does a far better job than other devices. The machine weighs only $13\frac{3}{4}$ lbs. with wheel and is easy to handle in any position. Ask for complete information.

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Size 6G Surfacing Machine

Ingersoll-Rand Size 6G Surfacing Machines smoothing up a concrete wall. The tools are being operated from an I.R. Portable Air Compressor.

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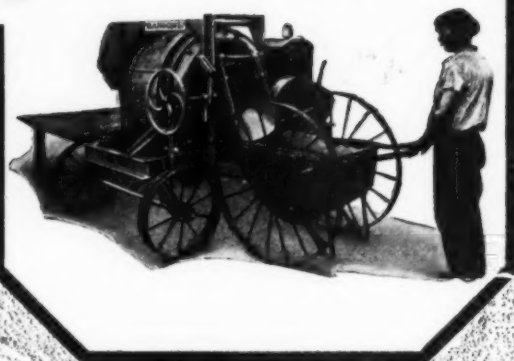
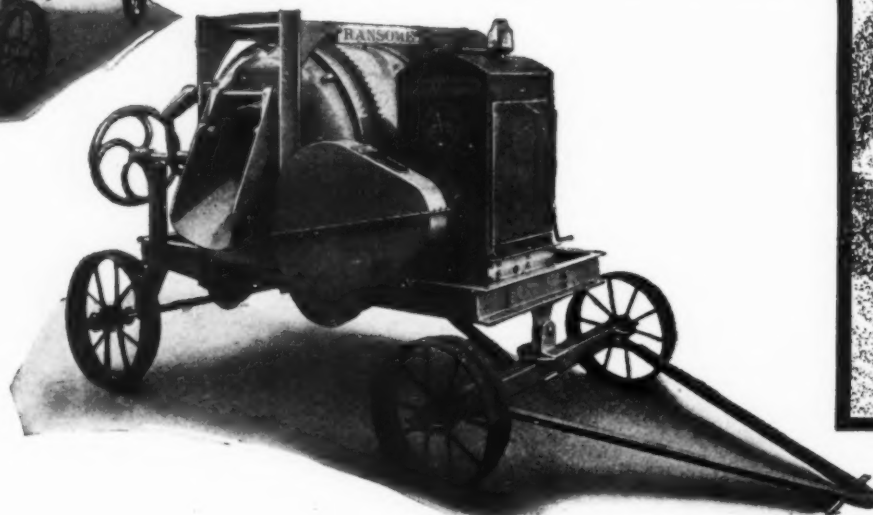
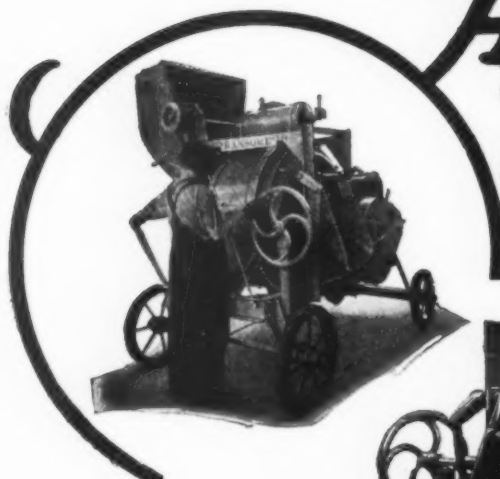
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DRUM—42 inches by 30 inches, with unusually large rounded corner to facilitate quick mixing with easy cleaning and give ample room to handle a one-bag batch of 1-2½-4.

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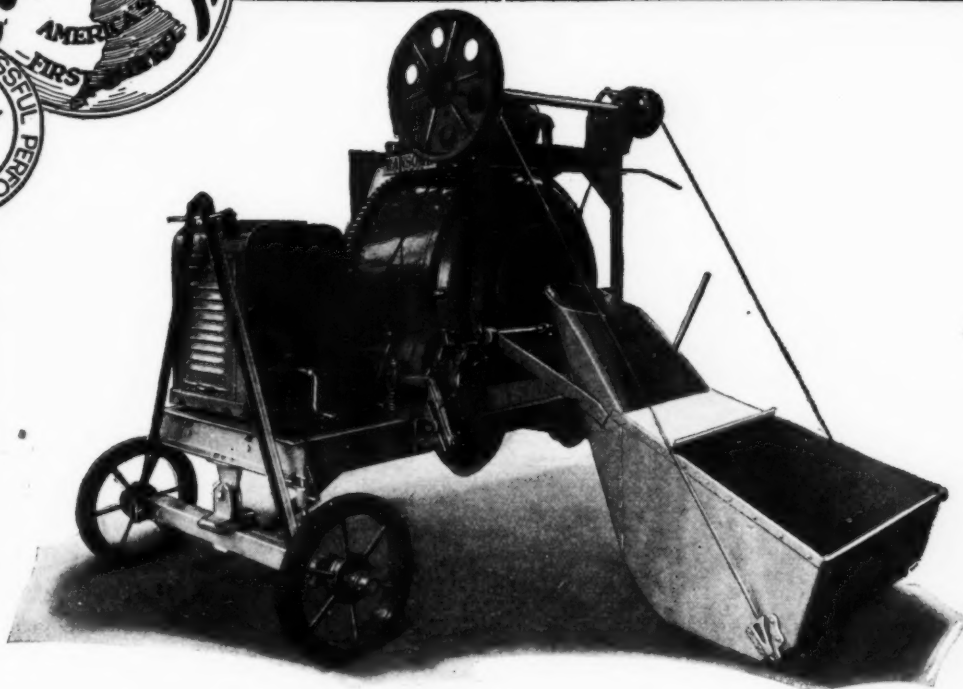
FRAME—Simple and rugged with unusual accessibility for making repairs or replacements.

TRUCKS—Short-coupled with front wheels turning under frame—easy to get mixer into limited space.

CHOICE OF POWER—Single cylinder LeRoi or Novo; two cylinder Novo or electric motor.

A Ransome Standard Building Mixer

No 5-S Standard Building Mixer



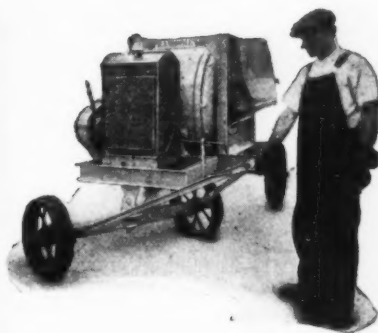
A RANSOME STANDARD BUILDING MIXER

for

The smaller contractors who want a one-bagger built to the standards of large mixers.

The large contractors who are not satisfied with a small mixer built to lower standards.

Our Engineering Department, backed by 77 years of experience in mixer building, designed the mixer to meet just these requirements.



Ransome Concrete Machinery Company

1850—Service for 77 Years—1927

Danellen

New Jersey

gets better the longer you use it.



HARRY KENT & SONS
3401 WEST 128TH STREET
CLEVELAND, OHIO

Marion Steam Shovel Co.,
Marion, Ohio.

Gentlemen:

In reply to your letter of July 16,
I am glad to say from my years of experience,
a better shovel cannot be built than your
Type 7 Steam.

It is my first experience of a shovel
that gets better the longer you use it.

While I do not have the exact figures,
I know there is a big saving in coal and water
due to the new out-off. A tank of water lasts
me 2 1/2 hours or better than twice as long as on
any shovel.

I like the splash lubrication on the
crowd and swing engines because I never have to
worry about turning up grease cups and burnt
bearings.

You can refer anybody to me and I will
be glad to tell them about the Type 7.

Yours very truly,

HARRY KENT & SONS

Harry Kent

THE MARION STEAM SHOVEL CO., Marion, Ohio
Without cost or obligation, please send a copy of Bulletin 318, to
Firm Name _____
By _____
Address _____
Nature of work _____

OWNERS everywhere are
getting an entirely new idea
of smooth, positive power, fast
work, lower maintenance and
operating costs and high yard-
ages in the Type 7 Steam. It is
the only one yard steam shovel
equipped with Marshall Valve
Gear, splash lubrication and
enclosed, trouble proof craw-
lers. Send the coupon for
Bulletin 318.

THE MARION STEAM SHOVEL CO.
MARION, OHIO, U. S. A.

27020

MARION



INTO our complete line of Link-Belt Loaders we have put all the experience and skill of our designers; employed all the superior manufacturing facilities of our modern shops. They are the best loaders we know how to make.

Are these the reasons why their performance has earned such nation-wide acceptance from those who load and unload all kinds of loose materials?

To own and operate a loader "Built and Backed by Link-Belt" is to know the real reason, yourself. Send for Catalogs.

LINK-BELT COMPANY
Leading Manufacturers of Elevating and Conveying Machinery
PHILADELPHIA, 2045 Hunting Park Ave. CHICAGO, 300 W. Pershing Road

VISIT OUR BOOTH AT THE ROAD SHOW
CLEVELAND, OHIO — Jan. 9-13, 1928.

3127

LINK-BELT

Famous Portable Loaders



THE OWEN BUCKET CO.
6023 Breakwater Ave., Cleveland, Ohio

Please send me your 17 REASONS FOLDER on the new Type "M"
Owen Bucket—

Name _____

Address _____

City _____ State _____

17 REASONS

why Owen Type "M" Buckets
are guaranteed against break-
age and have longer life.

- 1 ONE PIECE STEEL CROSSHEAD with fewer parts eliminates top heaviness and provides rigid construction.
- 2 NO WEAR IN UPPER ARM ENDS—outside arms fast to upper arm pin; inside arms locked in crosshead.
- 3 HEAVY FORGED STEEL ARMS with case hardened steel bushings at lower ends.
- 4 ADJUSTABLE UNDIMINISHED CLOSING POWER exerted by 6-part closing cable.
- 5 LONG LIFE SHEAVES AND CABLE. Closing sheaves are mounted on top of main counterweight.
- 6 LEVER TYPE ARM BRACKETS, exceptionally heavy, with case hardened steel lubricated arm pins and tag line bolts.
- 7 FORCE FEED ALEMITE LUBRICATION is applied to sheave pins, arm pins, and center shaft bearings.
- 8 CLOSING CABLE PROTECTED against excessive wear due to chafing.
- 9 HEAVY, SHOCK-RESISTING RENEWABLE LIPS, made of special alloy steel, provide lasting foundation to which teeth are bolted.
- 10 CABLE CLIPS ELIMINATED—rapid reeving obtained with closing and holding line sockets furnished with each bucket.
- 11 SEALED CENTER SHAFT BEARINGS—heavy renewable washers provide grit-proof bearings for lubricated center shaft.
- 12 GREATER DIGGING POWER WITH NO DEAD WEIGHT—due to proper distribution of weight, more than half of which is located on the center shaft.
- 13 SHARP PENETRATION AND CLEAN DUMPING due to uniform thickness at beveled cutting edges.
- 14 DROPPING SHOCKS ABSORBED, ELIMINATING BREAKAGE—due to an exclusive method of stopping the jaws at a fixed open position.
- 15 LESS RIVETS REQUIRED—due to heavy, flanged steel side plates.
- 16 HEAVY DUTY, HIGH CARBON, DROPPED FORGED STEEL TEETH with chisel point bevel and correct digging pitch.
- 17 LIPS AND TEETH points hit first when open bucket is dropped—the result is a bigger grab.

The New TYPE "M" Owen bucket

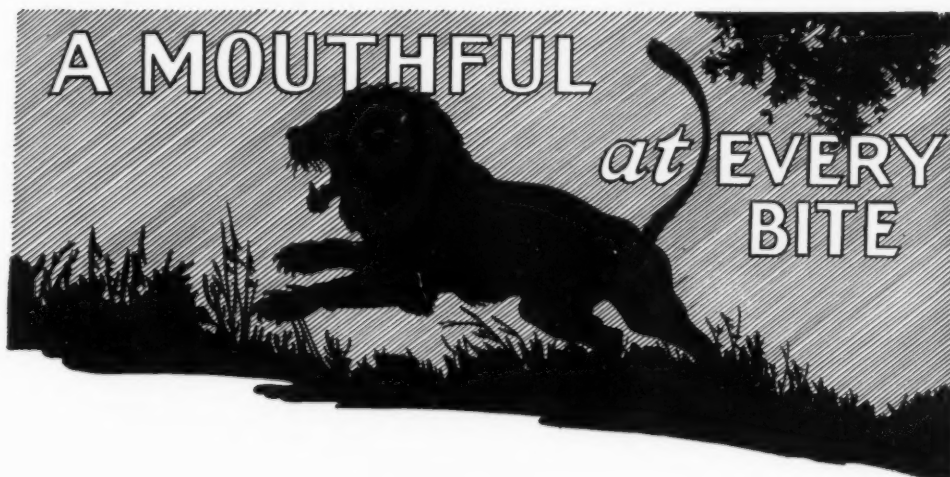
STRONGER, built to last longer—and to get "A Mouthful at Every Bite," the new Type "M" Owen is the last word in efficient digging equipment.

This new Owen has all the superiority of design, workmanship, and materials which has made so many friends for other Owen Buckets. And there are many new features found in no other bucket. **SEVENTEEN POINTS OF LEADERSHIP!**

The Type "M" is primarily a digger. It is made in three models; TYPE "M" STANDARD (shown at left) is designed for general excavating and dredging and for rehandling compact materials; TYPE "M" SPECIAL has a new grit-proof lubricated construction, making it ideal for excavating or dredging in materials of a very gritty nature; TYPE "M" NARROW, with capacities of $\frac{1}{2}$ and $\frac{3}{4}$ cubic yards, is a wonder on narrow trench work or for use on hoisting equipment which lacks sufficient power and stability to handle the heavier, standard width buckets.

Be sure and send the coupon today for the new Type "M" 17 REASONS FOLDER. It gives full data about the new features, with close-ups of the bucket and parts. **SEND FOR IT TODAY.**

THE OWEN BUCKET CO., 6023 Breakwater Ave., Cleveland, Ohio



Owen Buckets



HAISS TRUCK LOADERS

are Eisemann Equipped!

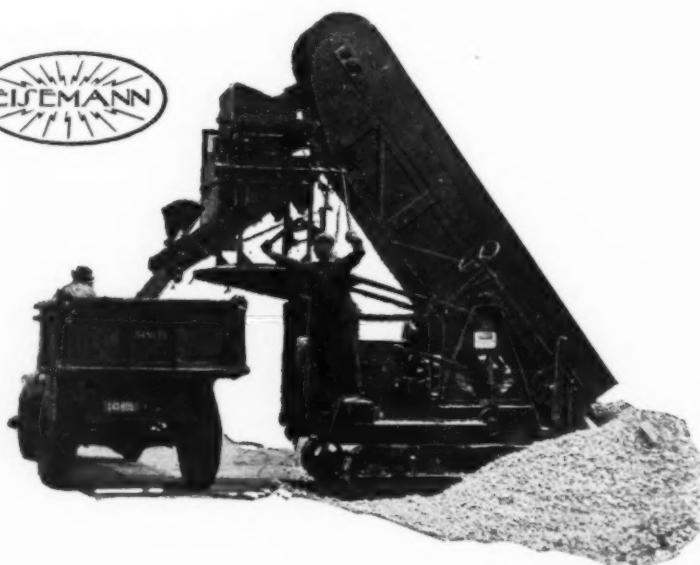
A FAULTY, unreliable, inefficient ignition system would be singularly out of place on heavy machinery such as this.

It would thwart the very economies such labor-saving devices are designed to effect.

The builders of HAISS Loaders spare no expense to give their buyers as fine an ignition system as money can buy—an Eisemann Magneto.

Rain or shine, the magneto functions without interruption. It starts the engine easily, even in the coldest weather. And it requires little or no attention.

EISEMANN MAGNETO CORPORATION
165 Broadway • New York
DETROIT • SAN FRANCISCO • CHICAGO



EISEMANN

ELECTRICAL EQUIPMENT

CAME TO AMERICA ALONE IN 1905

Now Has Thousands of Descendants

BANTAM CHAMP WINS PRAISE

Austin Pup Acclaimed as Road- maker's Handiest Tool

Despite his diminutive size, he has proved himself capable of the heavier work to which he has been assigned. Letters have come in citing him as the handiest piece of machinery in the whole roadmaker's outfit.

Daily His Popularity Is Growing

The camera caught several photos of this much talked of roller which show him doing various kinds of work, capably, easily and efficiently.

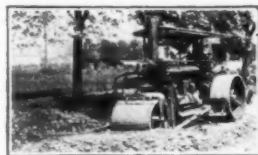
Strength

Here in the first photo he is shown scarifying a rut filled road, breaking up the defective surface so it will be in a condition for building up an even crown.



Perfect Adaptability

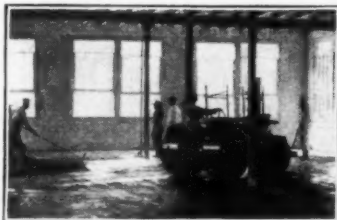
In this operation, the Austin Pup not only grades but rolls, leaving behind a finished road



ready for high speed motor travel.

Simplicity of Operation

Here is the Austin Pup doing inside work. Dodging between the pillars, getting into the corners, doing the work his heavier brothers could not possibly do, and rolling out when his jobs were all done then easily transported back to the shops. This is all done with an amazing ease made possible by the simplicity of operation.



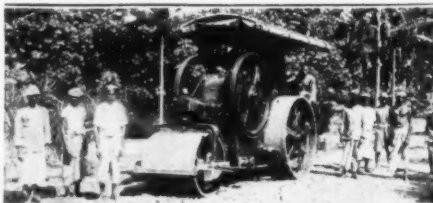
WHEN CANNONS ROARED

Hidden somewhere behind this array of dashing mustachios is one of the Austin family doing his bit on the front. During the Great War, over one thousand Austin Rollers represented the Allies in the war zone.

HOW MANY ROADBUILDERS HAVE THOUGHT OF THIS?

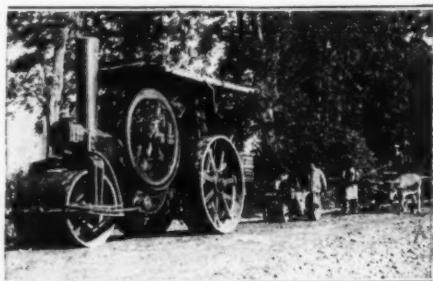


A young road contractor named Bender
In a traffic jam once lost a fender
"This jam is too bad"
Said Bender so sad,
"But I guess that my Austin will end 'er"



SINGAPORE WELCOMES AUSTIN ROLLERS Assured of Level Roads

SINGAPORE, Malay Federated States, July 4—Austin Roller with seven of his kind having traveled from Chicago, was greeted here by many outstanding personages. Those who made his acquaintance felt certain that rattling good cars would soon be traveling their roads, for level well-made roads are an Austin Roller specialty.



AUSTIN ROLLER OPERATING IN THE ANDES OF CHILE

The modern equipment is in striking contrast to the ancient ox drawn carts of the natives.

AUSTIN GIVES U. S. FIRST MOTOR ROLLER

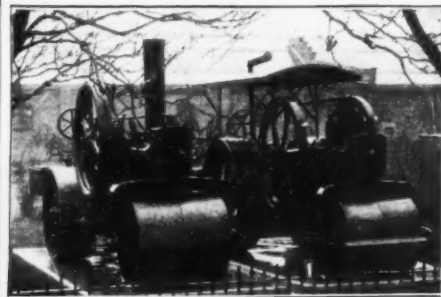
From Belfast, Ireland, Came the Forerunner of a Mighty Host

In the Spring of 1905 the Austin Manufacturing Co., imported this roller for experimental purposes, and so fully were they sold on the practicability of motor rollers that the experiments were continued until, finally in late 1907, they produced a motor roller free from the "bugs" which had held motor rollers back for so long. This was the

First Motor Roller Made in the U. S. A.

Years later, we bought back this roller and fittingly placed it on a pedestal beside the original importation which was the first motor roller in America.

"The Daddy of Them All"



From Whom They Inherited Strength Ease of Operation Simplicity of Operation Perfect Adaptability

ADVERTISEMENT

The Austin-Western Road
Machinery Co.
400 No. Michigan Blvd., Chicago, Ill.

Will send you without cost or obligation on your part a profusely illustrated catalog describing our rollers.

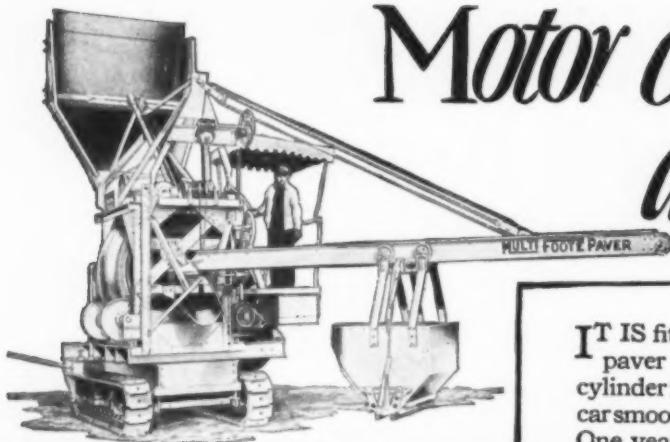
Name.....

Address.....

City.....

State.....

ADVERTISEMENT



Motor car smoothness in a paver-by Foote

IT IS fitting that the builder of the first gasoline paver and the first paver powered with a 4 cylinder motor should be the first to offer the motor car smoothness of a 6 cylinder engine.

One year ago—a year ahead of any other paver manufacturer—The Foote Company, Inc., put a 6 cylinder paver on paving work. There are many in operation today and they have been tested as no other 6 cylinder paver can be tested.

The Foote Company, Inc. of Nunda, N. Y.

World's largest exclusive builder of road pavers



Frank E. Hall
152 W. 42nd Street
New York, New York

MultiFoote Sales Company
2811 West Fulton Street
Chicago, Illinois

Wilcox Brothers, Inc.
588 Chenango Street
Binghamton, New York

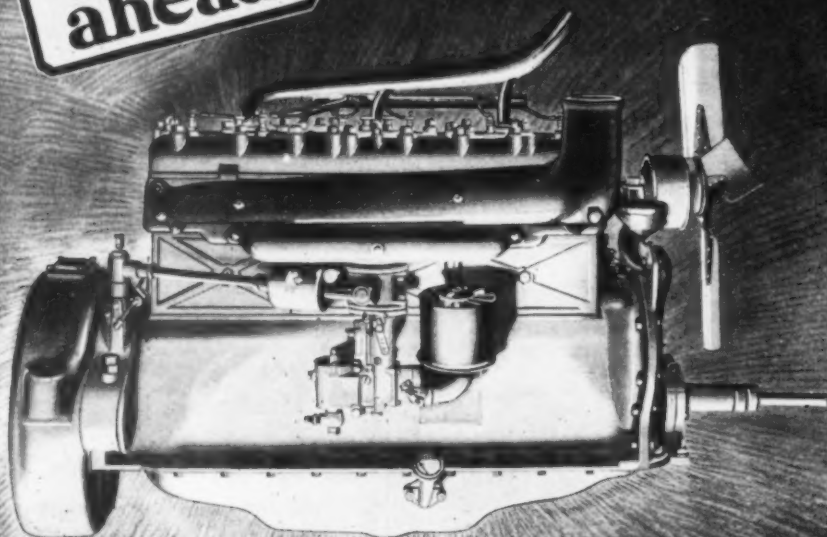
Burton Franklin
Volunteer Building
Chattanooga, Tennessee

E. J. McHarg & Company
31 Crestmont Road
Binghamton, New York

Edward R. Bacon Company
Folsom at 17th Street
San Francisco, California

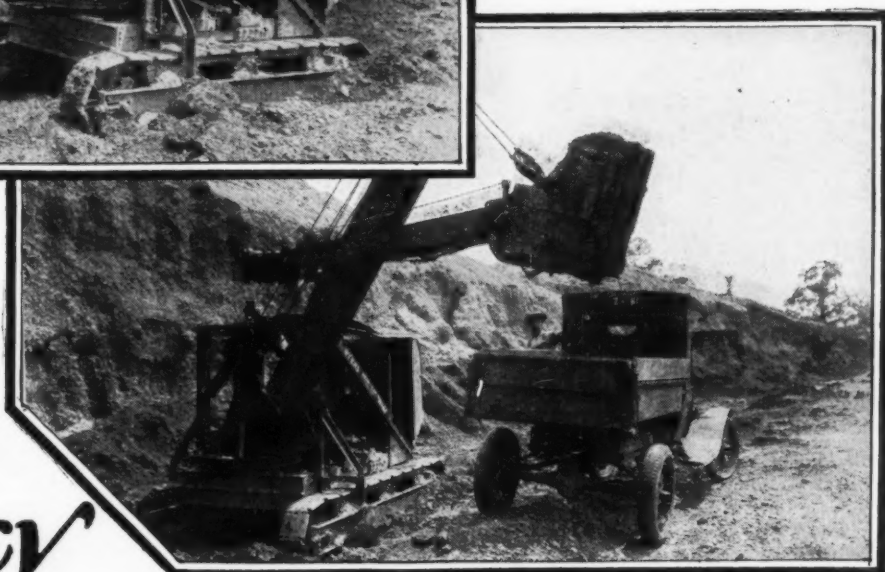
SM10-Gray

**One
year
ahead**





Bear Cat owned by
Clayton Contracting Co.,
St. Louis, Mo.



100% Shovel Efficiency with **BEAR CAT** Economy

THE work here is typical of a majority of jobs—just a half circle swing from bank or grade to the truck. The half circle Bear Cat is the ideal machine for such work, for it combines complete shovel action with Bear Cat economy. For those jobs which require it, the Full Circle Bear Cat is furnished.

way and you'll find it is the most machine for the investment that you can buy. It's big enough to do the work—small enough to be fast and economical. With five interchangeable attachments, the Bear Cat handles most any kind of job, and its big crawlers enable it to go most any place.

Compare the Bear Cat in every

Send for full particulars today.

BYERS MACHINE COMPANY, Ravenna, Ohio
Sales and Service Throughout the Country Builders also of Byers Truckcrane

BYERS BEAR CAT

CRANE—SHOVEL—DITCHER—SKIMMER—BACKFILLER
HALF CIRCLE OR FULL CIRCLE SWING

BYERS MACHINE CO., Ravenna, Ohio
Gentlemen—
Please send me information about the Bear Cat. The
kind of work I am interested in is _____
Name _____
Address _____
Town _____
State _____
E. M.
102

More Days in the Month for the CONTRACTOR

"CATERPILLAR" TRACTORS squeeze More Working Days into the Contractors' Month.

Extra Hours Added..

"Caterpillar" track-type tractors work in wet ground . . in heat or cold . . . reserve power handles the peak loads

Extra Hours Saved...

famous freedom from unnecessary shutdowns . . . heat-treated steels to carry the load . . a habit of keeping at work.

THERE IS A "CATERPILLAR" DEALER NEAR YOU

CATERPILLAR TRACTOR CO.

Executive Offices: San Leandro, California, U.S.A.

Sales Offices and Factories:

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San Leandro, California

Distributing Warehouse: Albany, N.Y.

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Successor to

BEST C. L. Best
Tractor Co.

The Holt Manufacturing Company

HOLT

PRICES

2-Ton . . . \$1850

Peoria, Illinois

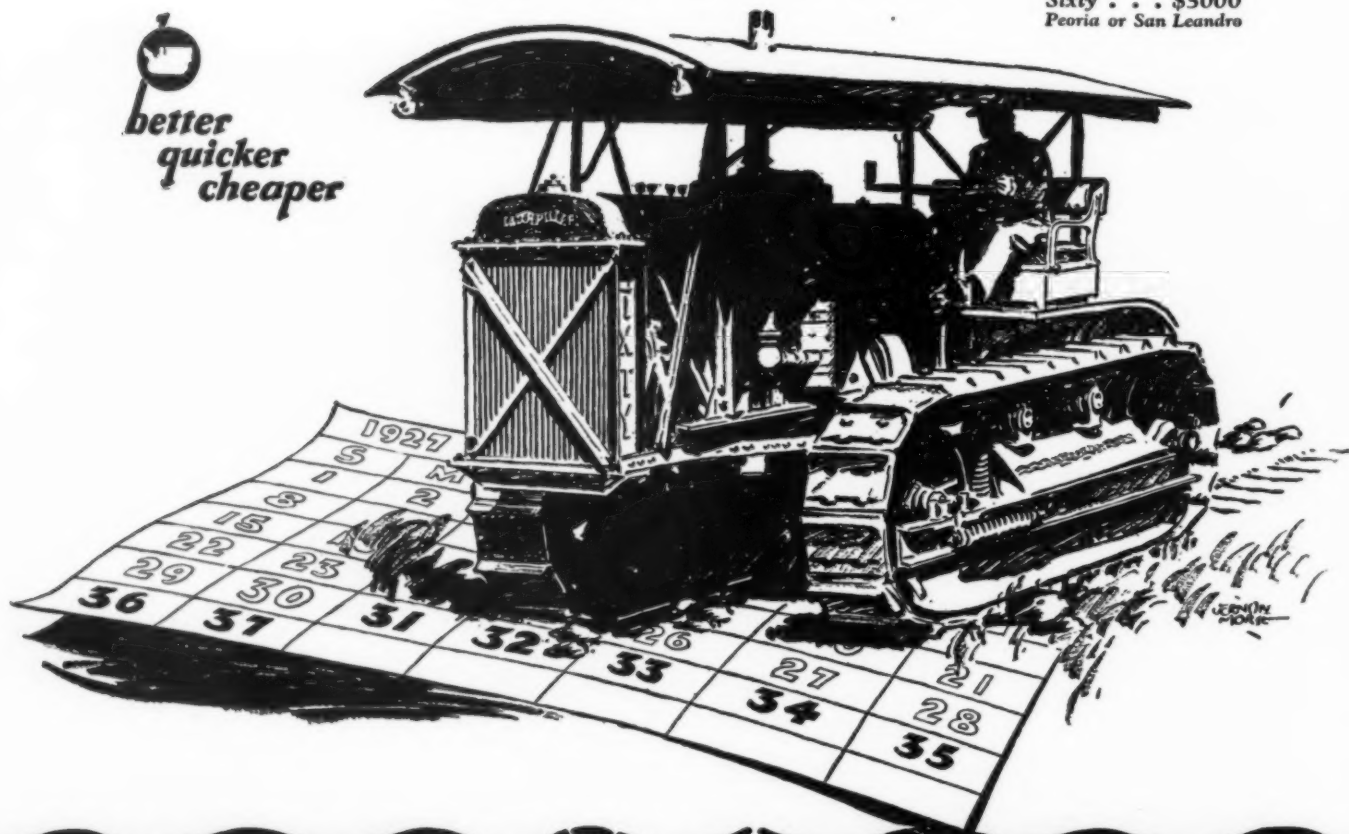
Thirty . . . \$3000

Peoria or San Leandro

Sixty . . . \$5000

Peoria or San Leandro


better
quicker
cheaper



CATERPILLAR
REG. U.S. PAT. OFF.



Trailer Bins



Sectional Bins



Agrabatchers



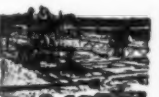
Road Forms



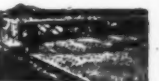
Curb and Gutter



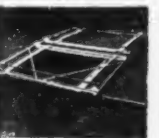
Sidewalk Forms



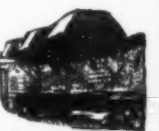
Joint Machines



Finishing Machines



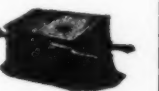
Traveling Bridges



Car Unloaders

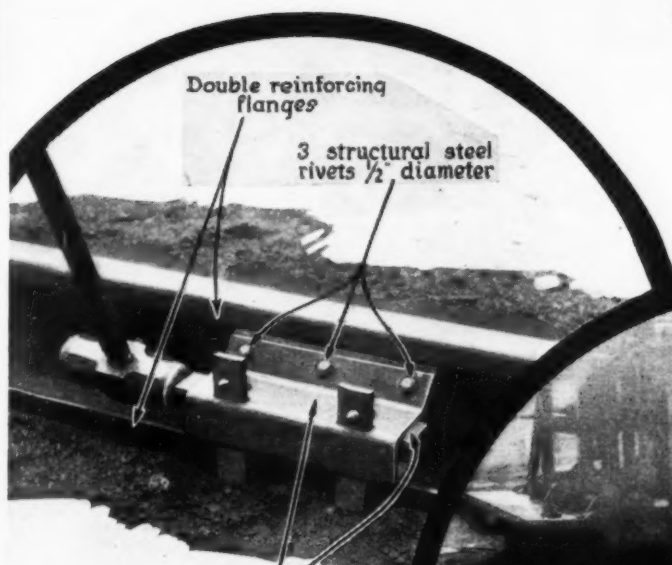


Mixing Boxes



Tool Boxes

The Road Form That is a Road Form



Double reinforcing
flanges

3 structural steel
rivets $\frac{1}{2}$ " diameter



No concrete can flow
into the stake pockets
or stake locks.

STAKES ONLY
6 INCHES APART
CENTER TO CENTER

HEAD OF JOINT
FITS SNUG UNDER TREAD
OF RAIL, PREVENTING ANY
DEFLECTION



Write for this
Catalog of HELTZEL
Steel Road Forms



Ask the man
who inspects 'em—
or the man
who owns 'em—
or the man
who sets 'em—

THE HELTZEL STEEL FORM & IRON CO. - WARREN, OHIO

HELTZEL

Export Office: Room 1332, 152 W. 42nd St., New York City.

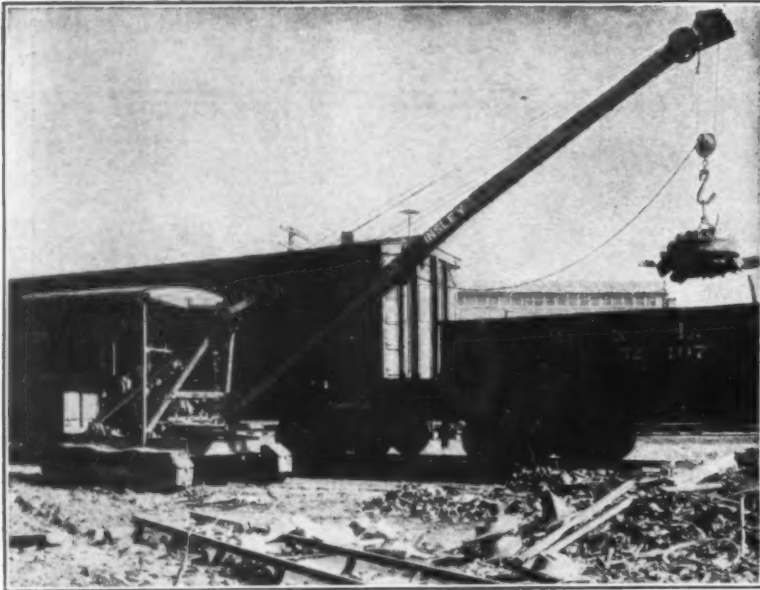
Cable Address: Oparo, New York. All Codes used.

THE INSLEY EXCAVATOR

for SHOVEL · DITCHER · CRANE
SKIMMER AND DRAGLINE WORK



*helps make—***PLYMOUTH**
Gasoline Locomotives



THE Fate - Root - Heath Company are builders of the Plymouth Gasoline Locomotives. They know good contractors' equipment, because they have built nothing else for years.

When the Fate-Root-Heath Company bought an Insley Excavator for use in their plant, they recognized it as an equal in quality and value to their own product—the Plymouth Locomotive

THE FATE-ROOT-HEATH COMPANY

PLYMOUTH LOCOMOTIVE WORKS

MANUFACTURERS OF

PLYMOUTH GASOLINE LOCOMOTIVES

PLYMOUTH, OHIO, U.S.A.

January 28, 1927.

Insley Manufacturing Company,
Indianapolis, Ind

Gentlemen:

The Insley Crane which we purchased from you about ten months ago is giving wonderful satisfaction.

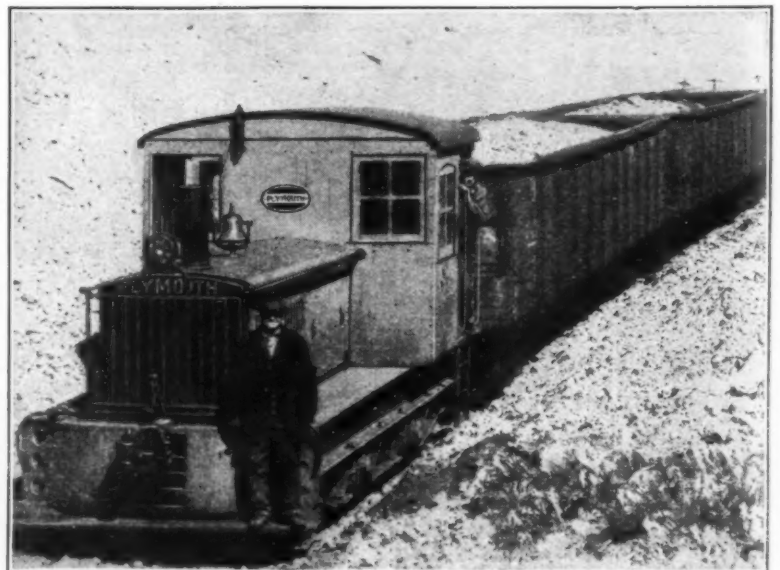
We use it not only for unloading steel and heavy material, but also for unloading pig iron and scrap with a 36" Ohio Magnet.

We feel that this is one of the best investments we ever made, and do not hesitate to recommend it for general industrial use.

Very truly,

J. A. Root
President.

JAR:RN



INSLEY MANUFACTURING COMPANY - Indianapolis

*Engineers
and
Manufacturers*

"Hook Your Wagons to a" LINN



*This load
was pulled from the bank
over soft ground*

Only a demonstration such as this can really bring out the true economy of *Linn* power in the dirt hauling phase of the contracting business. Thirteen yards of material handled with the ease of three. That's just another test of the *Linn's* power and versatility.

Its best references are obtained from its users. Let us refer you to them.

NOTE: We are carefully extending our representation and invite inquiries from responsible distributors of contractors equipment.

"Let a Linn do it"

LINN MANUFACTURING CORPORATION, Morris, N. Y.

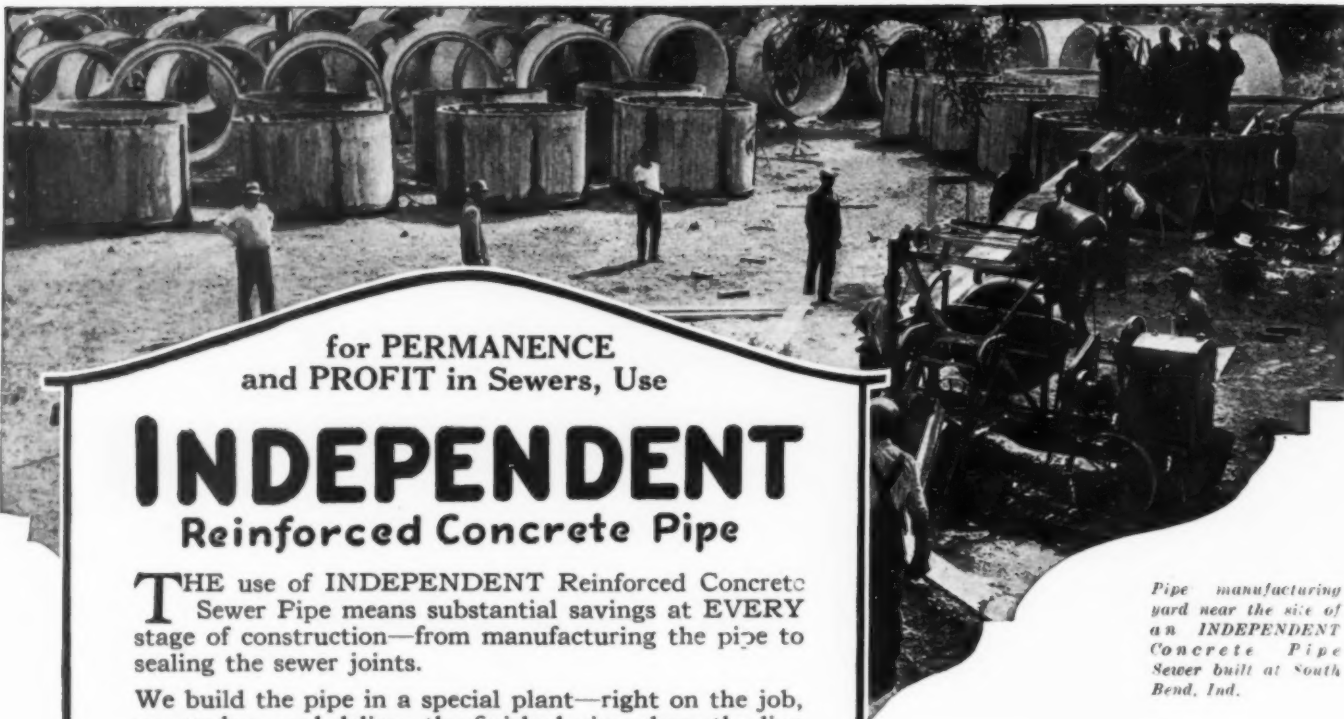
Division of Republic Motor Truck Co., Inc., Alma, Michigan

New York Office—32-37 Queens Blvd., Long Island City—Stillwell 3996

Mussens, Ltd., Montreal—Canadian Distributors

LINN
MANUFACTURING CORPORATION
TRACTORS

1916—Tested Eleven Years in Actual Service—1927



for PERMANENCE
and PROFIT in Sewers, Use

INDEPENDENT Reinforced Concrete Pipe

THE use of INDEPENDENT Reinforced Concrete Sewer Pipe means substantial savings at EVERY stage of construction—from manufacturing the pipe to sealing the sewer joints.

We build the pipe in a special plant—right on the job, or nearby—and deliver the finished pipe along the line of trench, all ready for the contractor to lay.

Large savings are also effected in laying the pipe. Joints are easier to seal, even under difficult trench conditions. The "Recessed Joint" can be sealed quicker, better and at lower cost, than any other type. Let us quote you on your prospective concrete pipe sewer work. Write or wire us

Pipe manufacturing yard near the site of an INDEPENDENT Concrete Pipe Sewer built at South Bend, Ind.

Get our Estimates

**INDEPENDENT CONCRETE
PIPE COMPANY**

202 N. West St., Indianapolis, Ind.



Capacities
one to
four yards
for
Auto Trucks
- or
Platform
Cars

EASTON ROLLOVER BODIES:

For roadbuilding, sewer work, dam construction and general contracting. Mixed concrete or sticky, mucky material can be handled in Easton Rollovers with all the ease of dry excavation or other loose flowing materials. Their easy automatic operating methods and positive dumping angle does the trick.

**EASTON CAR AND CONSTRUCTION CO.
EASTON PENNA.**

Startling Performance

This little Buckeye with $\frac{3}{8}$ -yard clamshell unloads

- a 60-ton car of sand in 40 minutes
- a 55-ton car of rock in 60 minutes



C. W. HARTMAN
CORNER 19th AND K STREETS
DUMP TRUCK WORK A SPECIALTY
NORTH WEST CRANE
LEVELING AND EXCAVATING
SAND AND DIRT CONTRACTING
IN ANY QUANTITY

HORNES AND MULES FOR RENT

BAKERSFIELD, CALIF.
June 18, 1927

Mr. Dan R. Brown, President
The Brown-Bovis Company, Inc.
470 East 3rd St.
Los Angeles, Calif.

Dear Sir:

Answering yours of June 17th in reference
to my Model "O" Buckeye Revolving Crane.

The crane has proven itself a wonderfully
fast operating machine, capable of unloading a 60-ton car
of sand in 40 minutes, a 55-ton car of rock in 1 hour,
operating 8 hours, 7 cars or 5 cars in 10 hours. As you
know, an operator in working 8 or 10 hours cannot unload
quite as much material as he would necessarily showing the
speed of the machine for a few minutes.

I believe this Model "O" is a wonderful
little machine.

Very truly yours,

C. W. Hartman

CWH:GG

\$4750

F.O.B. FINDLAY

is the price of this full-revolving Buckeye
Model O Crane without clamshell or cab.
With its multiplied working ability—
as Crane, Ditcher and Backfiller—it is
light, fast and dependable.

The price of this Buckeye is as remark-
able as its performance.

Its surprisingly low cost is made possible
by large production of one standard size.

Model O measures up fully to every Buck-
eye construction ideal. Write for descriptive
bulletin and check up the details yourself.

THE BUCKEYE TRACTION DITCHER CO., FINDLAY, OHIO

There's a Buckeye Sales and Service Office Near You

Buckeye

TRENCH EXCAVATORS FOR OVER 30 YEARS

LOWELL

REVERSIBLE RATCHET

WRENCHES

—On the Job—



LOWELL

tightening big nuts
under the Hudson River

Here's a 4 ft. Lowell Wrench tightening up 2¾-in. hexagon nuts on drop forged steel bolts in the Hudson River Vehicular Tunnel.

A REAL TEST FOR ANY WRENCH

You may not have a job just like this but among the many patterns and sizes of the Lowell Reversible Ratchet Wrench, you will certainly find the tool which will give you an equal satisfaction and prove to be both convenient and time saving.

State your problems to us and let us suggest an appropriate wrench.

Put our catalog M on your desk where it will be handy for reference.

LOWELL

WRENCH CO.

54 Commercial St.,
WORCESTER, MASS., U. S. A.

Send Today for Catalog M.



Cleveland C6 Tearing Out Stone Block Paving.

SMASHING—

up pavements, hard roads, frozen ground is—comparatively speaking—child's play with a Cleveland C6 Paving Breaker.

Scientifically designed, as to weight and balance, to produce more work with least fatigue to the operator, the C6 saves 75% of the time and 50% of the cost on practically any job.



It's versatile, too. In addition to breaking paving, for cutting manholes, enlarging trenches or any similar work, the Cleveland C6 Paving Breaker is unsurpassed.

The Cleveland Rock Drill Co.
3734 East 78th St. Cleveland, Ohio
Branches and Service Stations in Principal Cities

We Also Make

Hammer Drills
Clay Diggers

Tripod Drills
Back Fill Tampers
Accessories

Calking Tools
Drill Steel

PERMANENT AS THE PYRAMIDS OF EGYPT



Hydro Proof

Enduring!

THE ancient Egyptians used asphalt in the foundations for the Pyramids. That the pyramids still stand intact, after thousands of years exposed to suns, winds and storms of the tropics, is proof of the enduring qualities of asphalt.

As the pyramids of Egypt have withstood the ever-varying tropical temperatures, so has Hydro-Proof shown comparable resistance to heavy trucking and other traffic.

Hydro-Proof is pure asphalt—atomized and suspended in water. When applied according to our 1 2 3 Formula, Hydro-Proof permanently repairs or resurfaces concrete, brick, wooden block and other floors. It is resilient; feels good to walk upon. It is proof against moisture, acids, chemicals, alkali, is spark-proof and dustless. No chipping out of old material is necessary in preparing concrete or brick floors for repairs. 1 2 3 Hydro-Proof can be laid to a feather edge.

When your floors or driveways need repairing, try a sample of our 1 2 3 Hydro-Proof. No matter what your previous experiences have been, you'll find Hydro-Proof the most economical and satisfactory floor-resurfacing material you've ever used. We'll gladly send you a working sample and our 1 2 3 Hydro-Proof Formula, free.

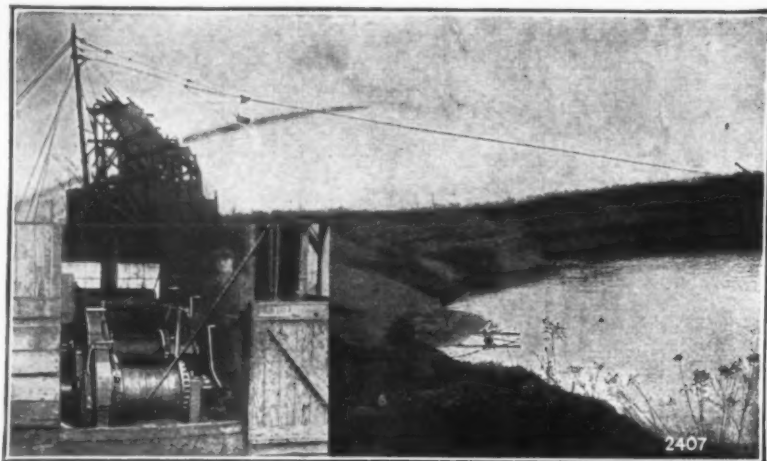
The Asphalt Products Co., 706 FREE STREET
SYRACUSE, N.Y.

Please
send me
a working
sample of
HYDRO-PROOF
and your 123
Formula, without
placing me under any
obligations. 704F.

Name.....

Address.....

The World's Most Enduring Material



General View of Plant and Hoist, Milburn Cont'g Co., Baldwin, N. Y.

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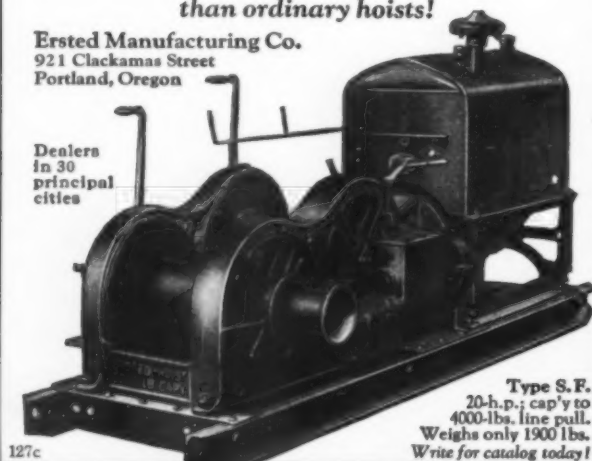
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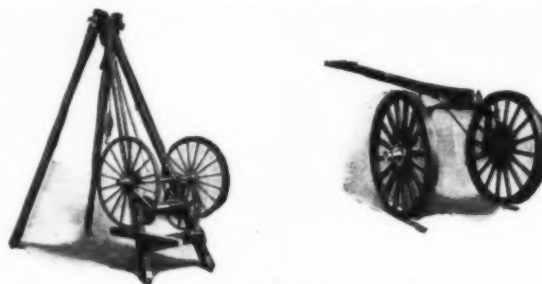
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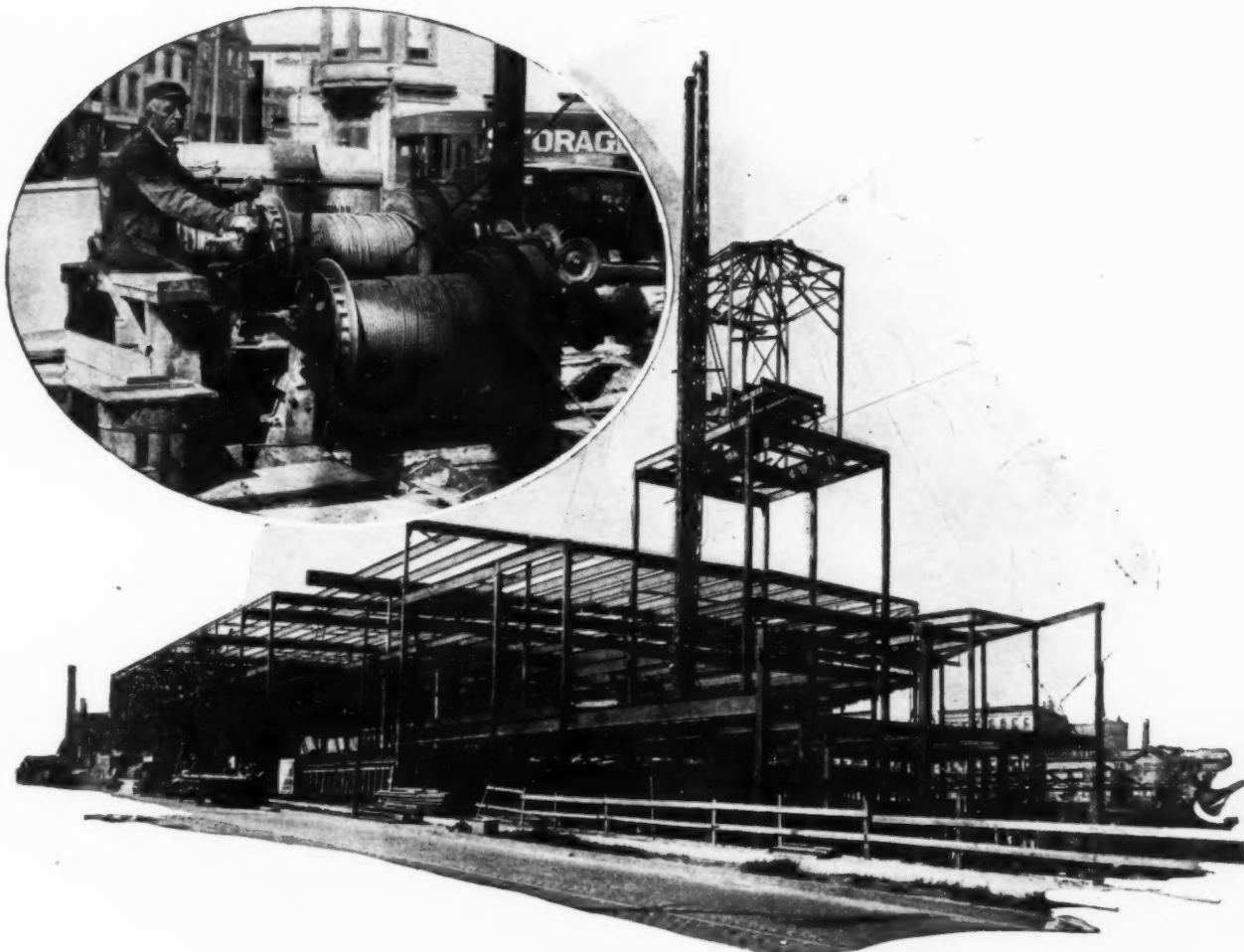
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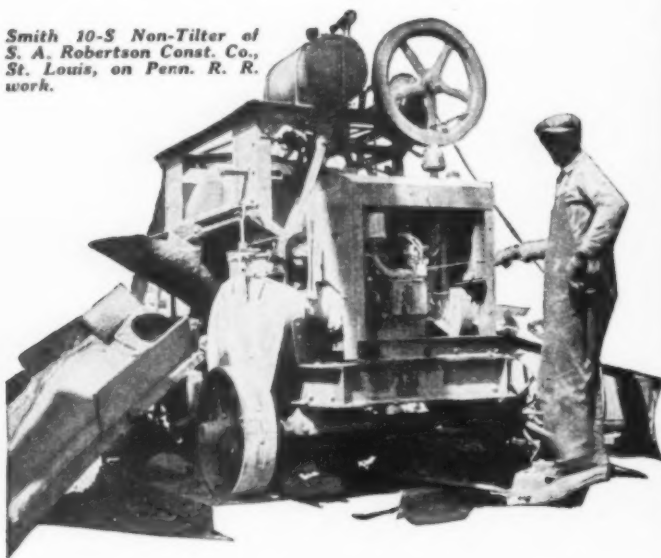
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Smith 10-S Non-Tilter of
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work.



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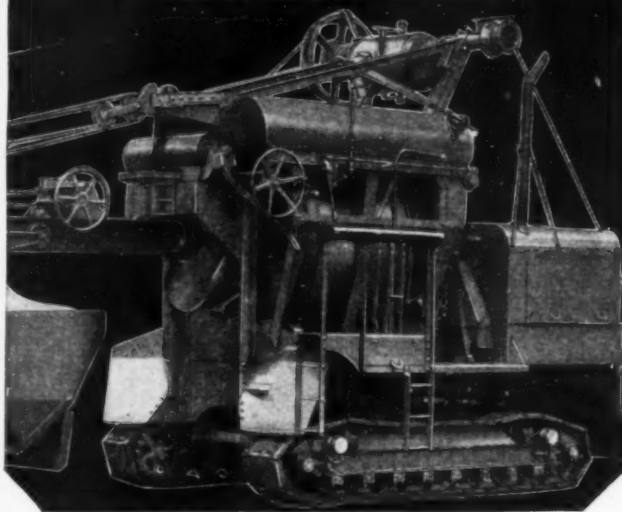


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The Finest, Fastest Paver Ever Built



Climb on the platform of the new Rex 27-E and try the controls yourself—time every operation—check the specifications and you will understand why we call this New Rex "The Finest, Fastest Paver Ever Built." Ask for a catalog on it.

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Forty-eight pages of construction costs covering a period of 17 years have been compiled by *Engineering News-Record*. Here you have in convenient form the high-low-average prices of basic materials and rates paid labor in a number of centers.

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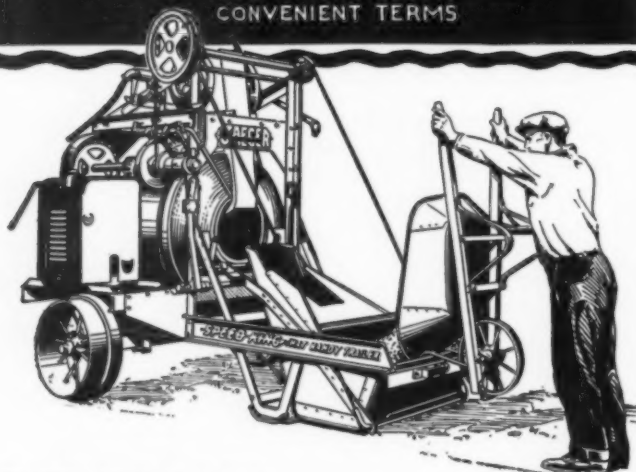
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THE SPEED KING
\$200 PRICE REDUCTION
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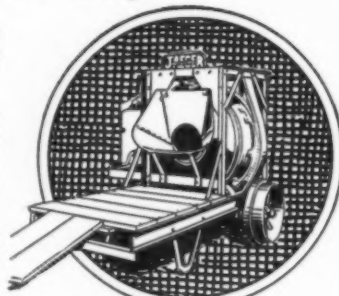
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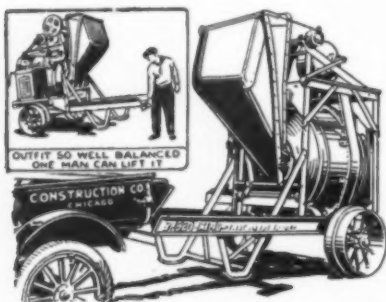
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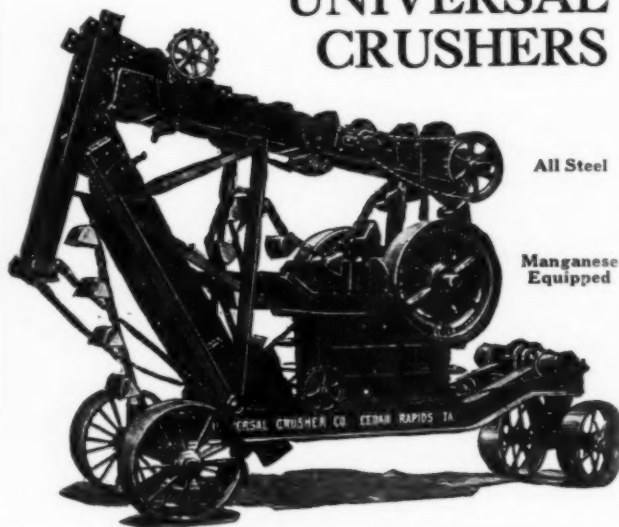
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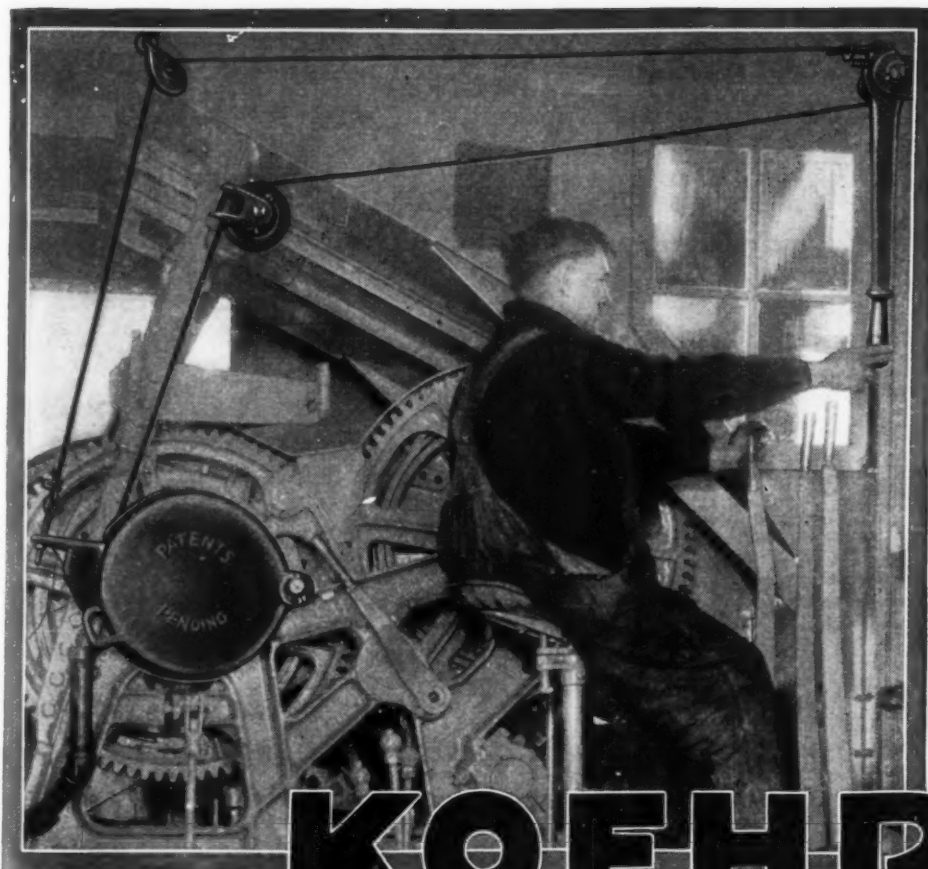
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The Koehring dipper trips by *power*! Easy shifting hand-lever throws the clutch — and power does the rest!

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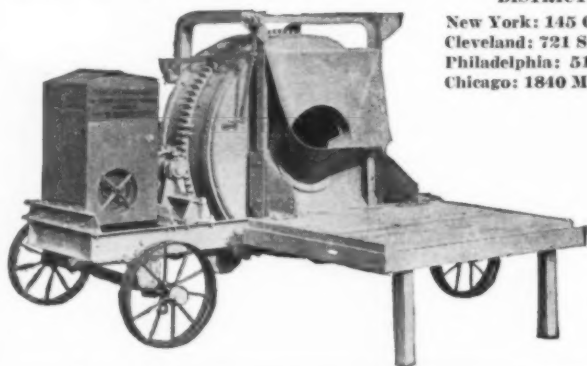
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During eleven months' operation, two 8-hr. shifts per day, in hydraulic channel work and constructing fills, this dredge moved 1,050,000 cu. yd. of material through a delivery line of 800-ft. average length and with 10-ft. static head. The material consisted of approximately 400,000 cu. yd. of sand, 50,000 cu. yd. of clay, 1000 cu. yd. of shell rock and boulders, and the balance a mixture of mud, oyster shells, clay and gravel.

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Morris Engineers specialize on heavy dredging, and have 63-years' pump designing experience and exceptional building facilities to make Morris units genuinely superior. Get our advice or at least Morris Bulletin 125.

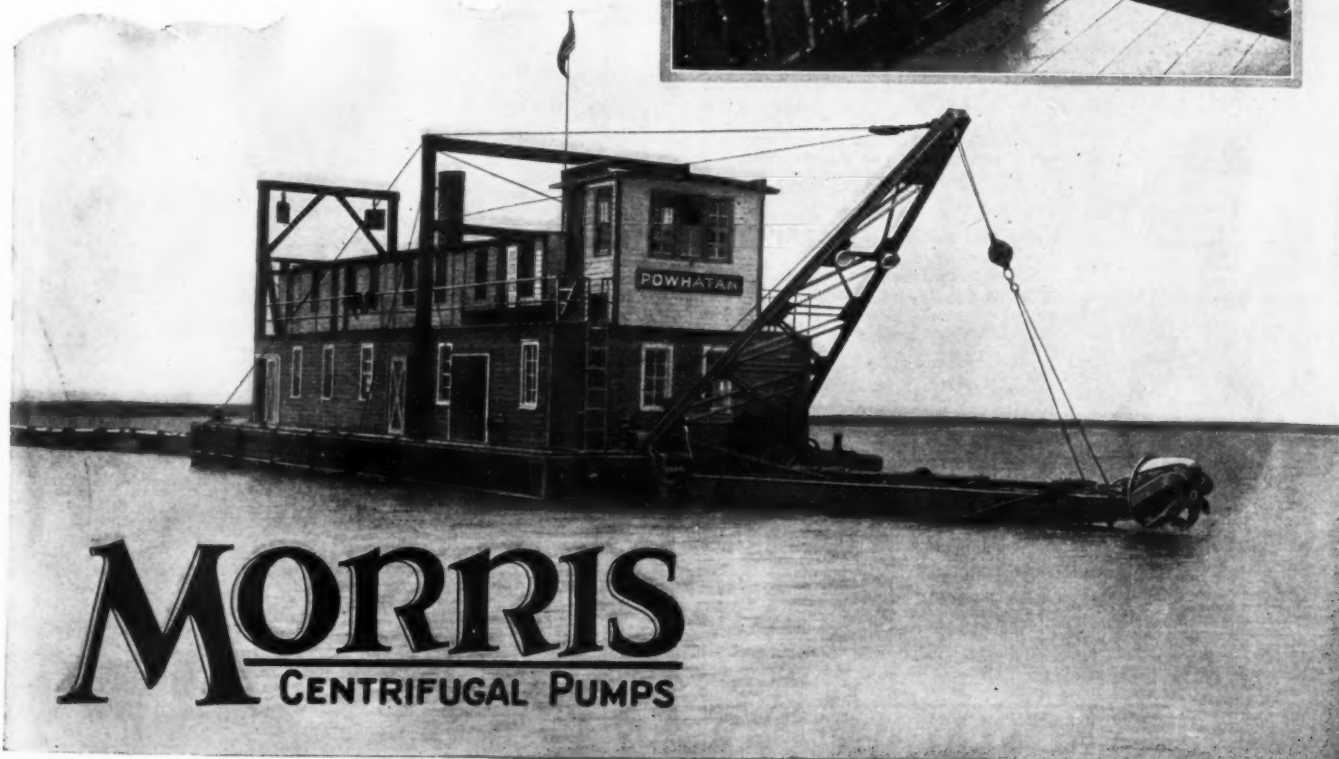
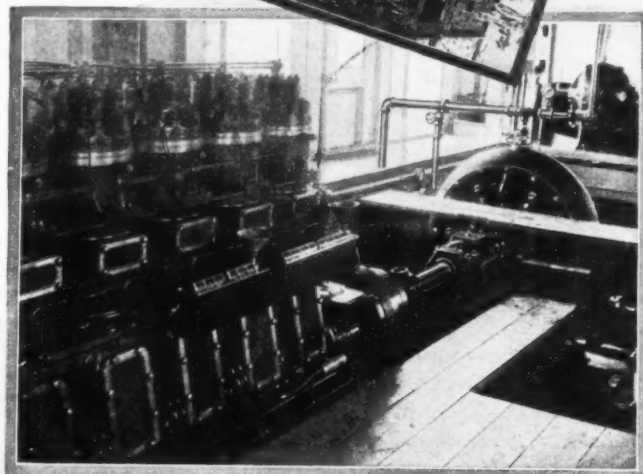
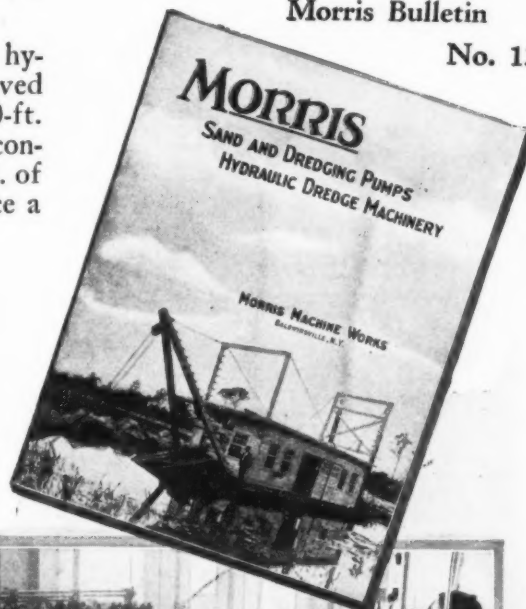
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Originators of Centrifugal Pumps, both single and multi-stage, and builders for practically all purposes since 1864.

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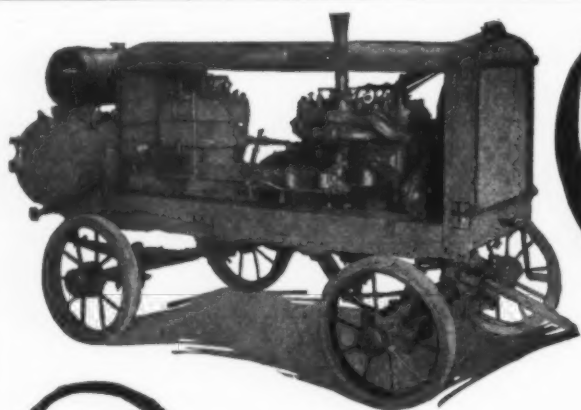
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Morris Bulletin

No. 125



MORRIS

CENTRIFUGAL PUMPS



For mounting on Ford and other trucks

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We are glad to say that the Schramm Compressors in the field have, without exception, given uninterrupted power under all conditions of structural and road service.

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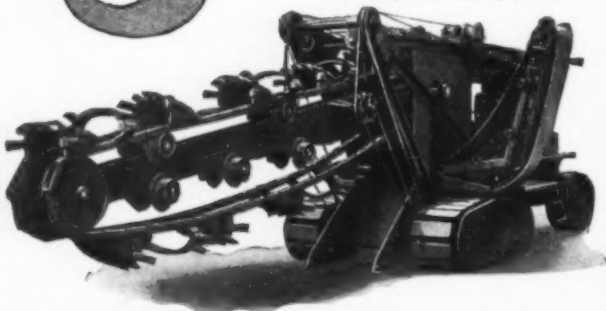
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By taking advantage of soil conditions, you can cut the time on the job—save wages—boost your profits on every contract.

**The Only Large
Trencher with
THREE
Bucket Line Speeds
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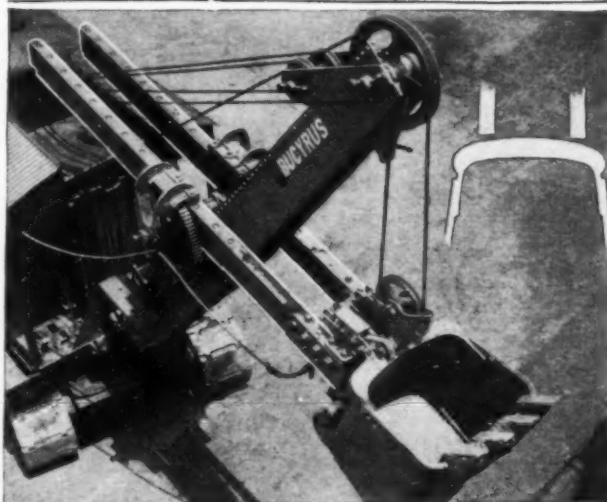
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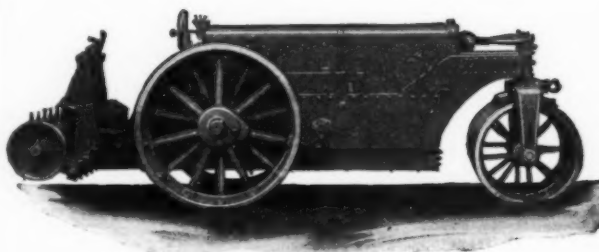
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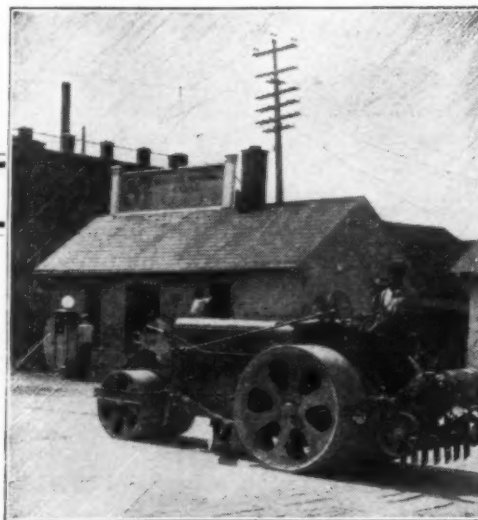
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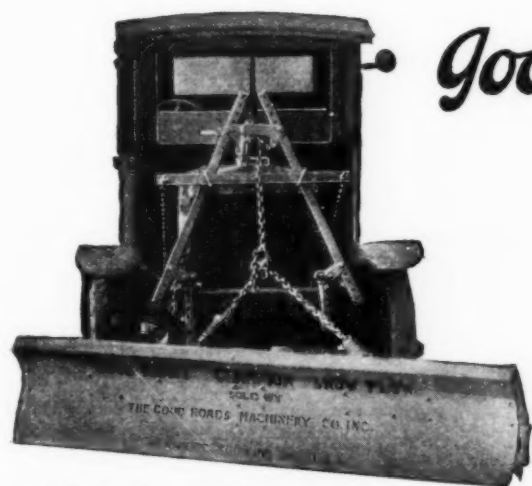


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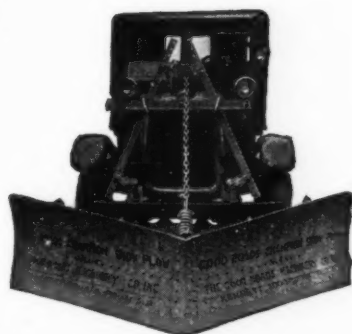
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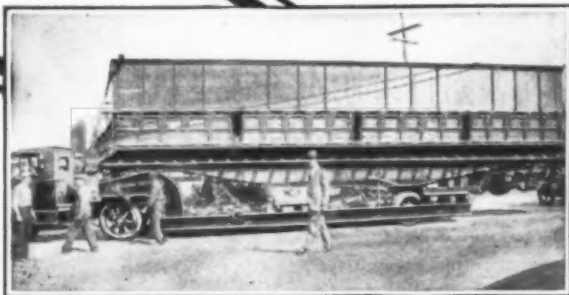


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Below is illustrated the BUHL Type C Portable Compressor—one of the many different types of this popular line. Moderate in original cost and low in upkeep.

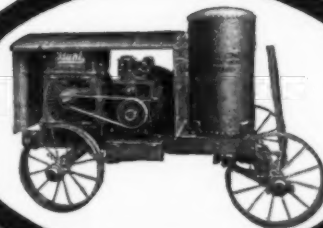
There are six sizes of portable air compressors in the BUHL line to choose from. For operating jack hammers, riveters, clay spades, concrete breakers, etc. The BUHL gives dependable air power at low cost—send for bulletins today.

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Manufacturers

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This size 2 Union Hammer is driving and pulling 14 in. arch web steel sheet piling for cofferdams for a state highway bridge in Georgia. It is one of six owned by the Hardaway Contracting Company, Columbus, Ga.

The patent cushion cap prevents damage to the steel sheet piling, just as the other Union bases protect other types of piles.

Nine sizes to choose from.

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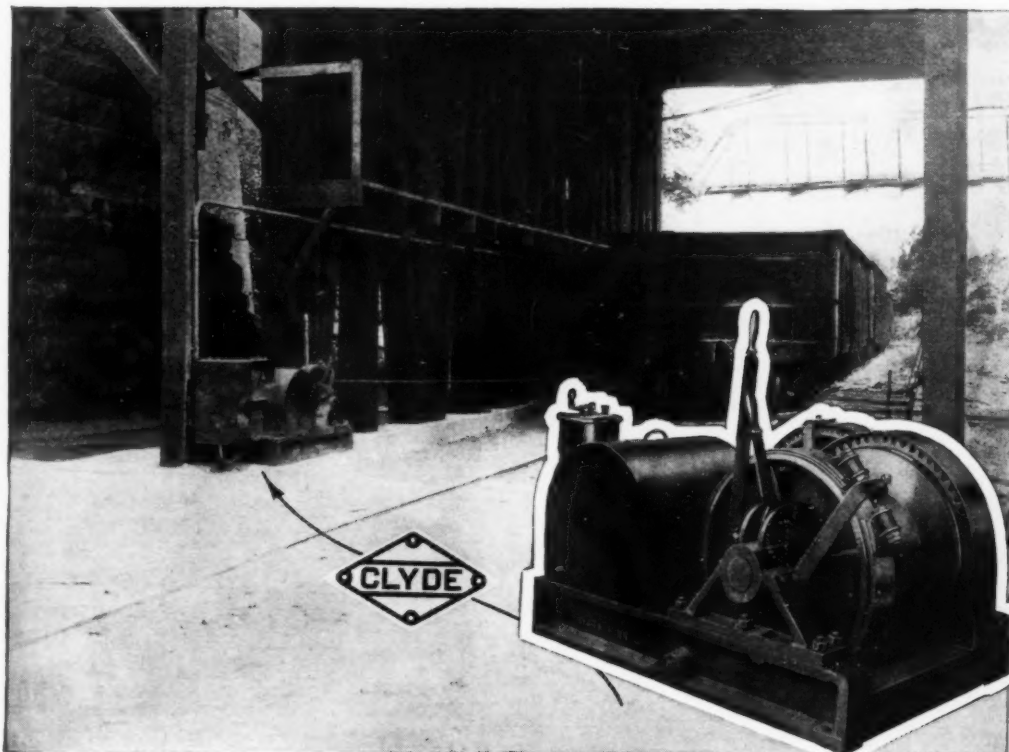


HOISTS CLYDE DERRICKS

The illustration gives an effective example of the use of the Clyde drum-type car puller. It is employed here by the Dubuque Stone Products Company, of Dubuque, Ia., for handling cars to and from a loading station.

The Clyde car puller does not require an experienced operator. It is carefully protected against weather, is simple, strong and safe to handle. Saves the time of a locomotive or a gang of laborers for spotting cars. Every factory of size, every grain elevator, every quarry and every gravel pit can make substantial savings with this Clyde outfit. Complete details on request.

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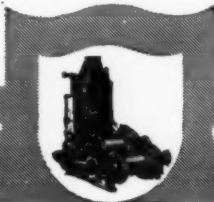
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Photo by courtesy of Spencer-White and Prentis.

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They are being used extensively by Underpinning and Foundation Contractors for underpinning work, sinking piles under foundations and making tests of footings.

These jacks are accurate, dependable and easy to repair.

The pump, being independent, can be operated at a safe distance from the load and in a convenient position. For forcing and pressing work, it can be used in connection with your own framework. For extra heavy work, several jacks may be used with one pump or from an accumulator.

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Write for catalogs.

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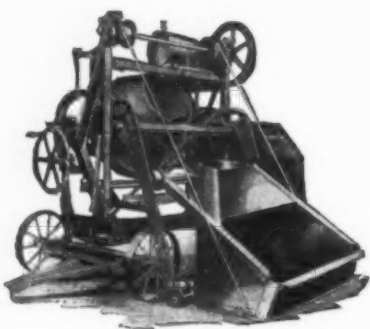
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You can do this if you have a WONDER on the job to speed up your work. It's built for top notch production and contains many new high speed features for getting the concrete into the forms with greater speed.

The WONDER Catalog fully explains why WONDER Mixers enable you to do more work—in less time—with less labor—at less expense. Send for your copy today.

CONSTRUCTION MACHINERY COMPANY
Waterloo, Iowa

Naturally—BLAW-KNOX Steel Forms

were used on this unusual job

The STEEL FORMS and the Gantry Traveler which played such a major part in the dry-dock construction of the 12 segments for the Oakland-Alameda Estuary Tunnel—were designed and built by Blaw-Knox.

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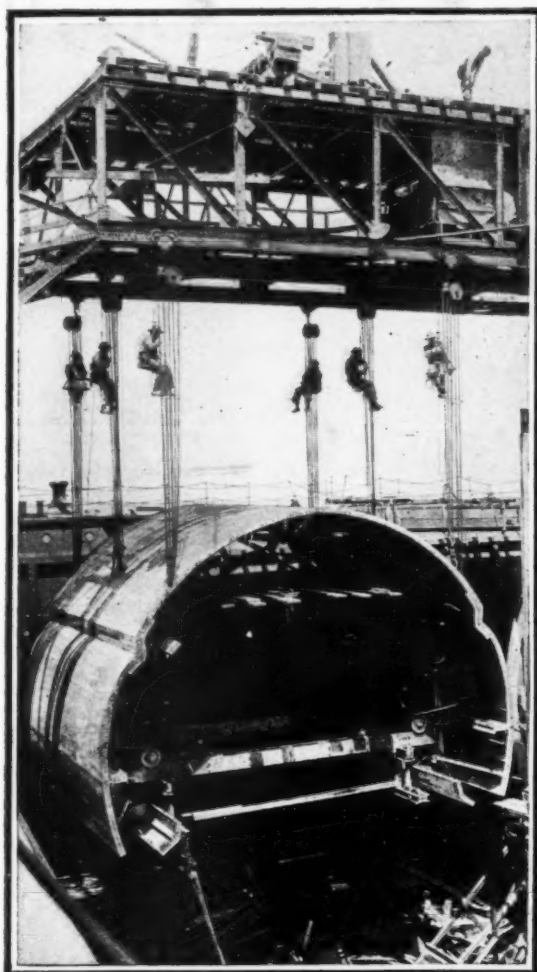
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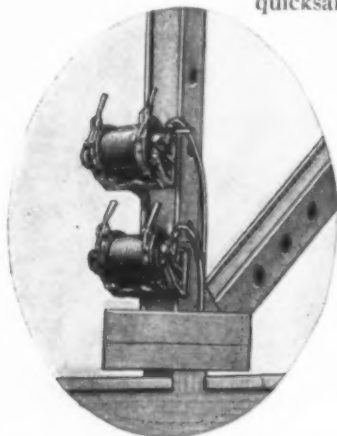
STEEL FORMS

Turbinair Hoist Handles Orange Peel Bucket

JOSEPH WINTERBOTTOM, Cleveland contractor, ran into quicksand on a Lakewood sewer job. He had to put on an orange peel bucket to lift the quicksand from the caisson. He selected the versatile little "Turbinair" Hoist to handle the bucket.

The sewer consisted of a mile of egg-shaped tunnel, with a cross-sectional diameter of 48 inches, driven through shale rock. The only earth encountered was in the two shafts from which the tunnel was worked.

In sinking one of these shafts, which was 90 feet deep, quicksand was



encountered, and it was necessary to sink a steel caisson. A 1/4-yard orange-peel bucket worked inside this caisson to lift out the quicksand, and the Turbinair Hoist handled the bucket.

The two cables needed to lower the bucket into the caisson, and to close and lift the loaded bucket, were handled conveniently on the two drums of the hoist.

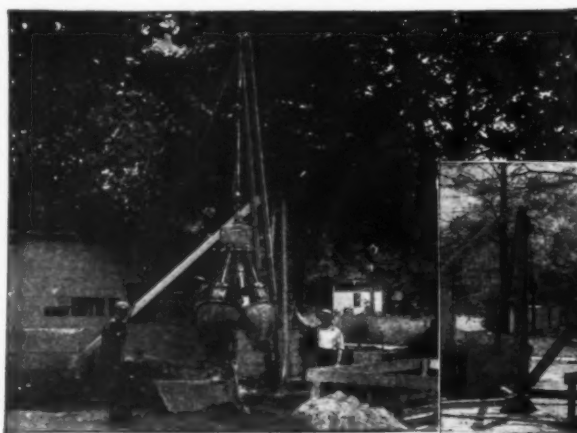
Turbinair Hoists, weighing only 345 lbs.,

will lift 2000 lbs. at 110 ft. per min., or will pull a 100,000-lb. car on level track. Their unusual power, in connection with low cost, lightness, and easy portability, make Sullivan Hoists the choice of many contractors. Single and two-drum "Turbinair" or Electric models are available.

*Write for the picture book
"Handy Hoisting and Hauling"*

SULLIVAN

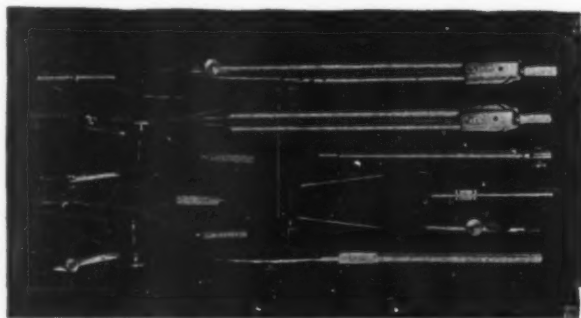
168 SOUTH MICHIGAN AVE., CHICAGO, U. S. A.



*At left: Orange Peel Bucket operated by hoist.
Below: Spoil Bucket and stiff-leg derrick.*



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A Word to the Readers of Construction Methods

THIS PAPER is edited to help you.

Its chief purpose is to show you the methods and equipment that are being used successfully on construction work and for handling bulk materials in the field.

Naturally its editorial contents must deal largely with modern machinery, equipment, tools and materials. Field work has definitely advanced from the day of man-labor to the day of machine-labor. The successful field man—the man who is going to have a better job or a bigger business tomorrow—is the man who keeps abreast of the never-ceasing improvement in the equipment and materials with which he must work. On this substantial fact the editorial policy of *Construction Methods* has been founded.

But the service of the paper to you does not end with the work of the editor.

NO one has contributed more to the improvement of field methods than has the manufacturer whose advertisement appears in these pages. Day in and day out he is alert for new ideas that he may adapt to the practical needs of you men in the field. It is largely due to his vision, enterprise and initiative that the field man of today has been enabled to increase his own producing capacity and earning power.

The manufacturer, too, is contributing to the service

Construction Methods offers to you, for the story he tells in his advertisement is but an expansion of its editorial theme.

He advertises here only because he believes that his product can be of service to you and that you will want to hear how he can help you to do more work and better work at a longer profit.

Above all, he is here because he believes in *Construction Methods* and in the service it is rendering to you. He believes that his message is in harmony with the spirit and purpose of the paper, and in publishing it here he is helping to increase the value of the paper to you.

WE believe that you will profit by using the facilities he offers through these advertising pages. Read his message. Study his products. Let him know that you are interested and ask him freely for any further help you think he can give you.

The manufacturer prospers only as he is useful to you. You prosper only as you make the most of what he offers. *Construction Methods* prospers only as it is helpful to you both.

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Burner Drying
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Before Patching

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Write for Bulletin C-6
which gives full details.

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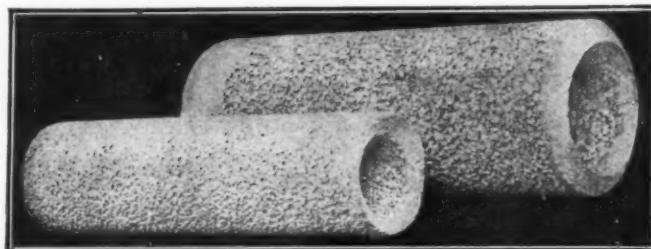
Here's the new
Novo Pumping Handbook

—just off the press. It is packed with pumping experiences of every kind in every corner of the country. And it contains valuable facts and figures that will help you check up on your pumping costs. Send for your free copy today.

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That is what S. G. MacTarnagh said after using a 13 cu.ft. Sauerman "Junior"



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Slackline Cableway for digging sand and gravel from the Allegheny River near Tionesta, Pa.

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will hurry the stuff away when you get it on the cars. They will keep on doing it, too, all day long and all through the job.

Because

They are built for that kind of service and not to make you wonder how you will move the stuff tomorrow. They are not built "to just get by" but to leave fond memories when the job is done.

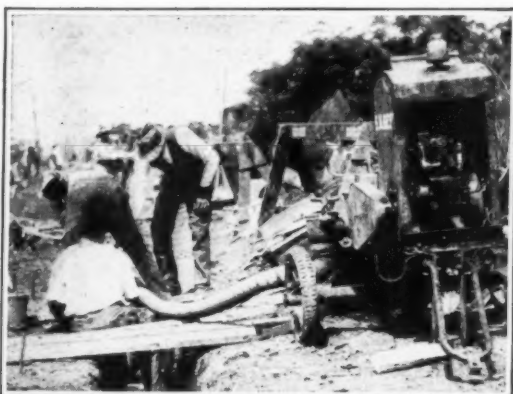
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Cincinnati, Ohio

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With non-clogging ball valves give higher efficiencies

THE HUMDINGER shown here was the first used by the G. M. Gest organization. On the strength of its performance J. H. Gest writes, "We have now discarded our other pumps and are standardizing on the HUMDINGER." Their SUSTAINED PERFORMANCE UNDER SEVERE CONDITIONS tells its own story.

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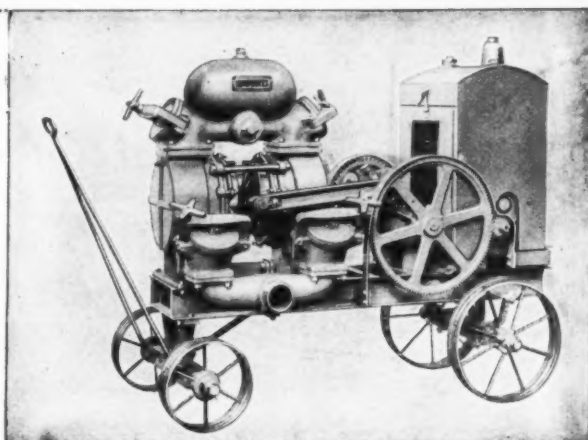
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